

ABSTRACT

Title of Document: Cycling the City: Locating Cycling in the
Continued (Re)Structuring of North American
Cities

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Bicycling is a growing mobility practice within contemporary U.S. cities that has multiple effects on the formation of the urban as “We are surrounded by cycling” (Horton et al, 2007, p. 1). This project investigates how cycling has shaped the city by analyzing the role that the governance and practice of cycling currently plays in the political, economic, social, spatial, and affective re-formation of the urban. Through the use of a combination of methods, working at various levels of analysis, the aim is to locate the impact of cycling policies and practices on the structural, discursive, and embodied dimensions of contemporary urban (re)structuring. It is an analysis of macro political processes, the formation of cycling communities, and the experiential dimension of riding in the city. Latham & McCormack (2010) state “cities are constantly generating new forms of collective life, novel ways of being together” (p. 55). Thus, this project interrogates the various ways in which cycling impacts upon

cities, and influences their (re)formation in potentially “historically unprecedented ways” (Wachsmuth et al, 2011, p. 741). Through studying cycling in Boston, Baltimore, and Washington DC this project provides a multi-sited analysis of how cycling is positioned within U.S. cities currently, as well as the complex and diverse processes that inform the contemporary organization of these urban spaces.

U.S. cities currently exist within a broad “climate of cuts, austerity and state retrenchment” (Newman, 2013, p. 1) that has defined current patterns of urban governance. I have researched the ways in which cycling has underpinned and simultaneously challenged these broad shifts toward neoliberal governance. Cycling is both drawn into “marketing of urban “culture” and history by entrepreneurial governance” (Cherot and Murray, 2002, p. 432), but also underpins cities as entities that “defy efforts to be classified into types, reduced to essential characteristics, and fixed by boundaries (intellectual or otherwise)” (Prytherch, 2002, p. 772). As such this project investigates this simultaneously overlapping and contradictory impact of cycling on the city, mapping the multiple locations of cycling within the perpetual (re)formation of the urban.

CYCLING THE CITY: LOCATING CYCLING IN THE CONTINUED
(RE)STRUCTURING OF NORTH AMERICAN CITIES

By

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This project has been the culmination of a long and uninterrupted journey in education that has spanned two continents and three decades. It has been intensely challenging and rewarding, pushing me to my limits. However, it has also been a journey through which I have met some amazing people, who in turn have made all of this possible. This project not only represents my academic development to this point, but also stands as a testament to the meaningful relationships I have forged and come to rely upon.

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List of Abbreviations

ANT	Actor-Network Theory
ANT+	An open access multicast wireless sensor network technology
BBP	Baltimore Bike Party
ISTEA	Intermodal Surface Transportation Efficiency Act
TEA21	Transportation Equity Act for the Twenty-First Century
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
MAP21	Moving Ahead for Progress in the 21st Century Act
PCS	Physical Cultural Studies
CPA	Critical Policy Analysis
CDA	Critical Discourse Analysis
GPS	Global Positioning System
GSR	Galvanic Skin Response
ABW	Alliance for Biking and Walking
BABP	Boston Area Bicycle Project
FGFS	Fixed Gear Free Style
P3	Public Private Partnership

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Introduction

Project aims and orientations

This dissertation analyzes, and maps the position of cycling within contemporary U.S. cities through across various levels of analysis. I have drawn on multiple theories, empirical sites, and methods in order to answer the question ‘**how has cycling impacted upon the contemporary U.S. city as it undergoes a continual process of re-formation?**’ In order to answer this question I have investigated the role of cycling discursively, socio-culturally, and experientially in the current and ongoing becoming of urban spaces and practices. Through studying three U.S. cities – Boston, Baltimore, and Washington DC – at various levels of interpretation, I have constructed an interrogation of the various political, economic, symbolic, and affective impacts urban cycling has within the U.S. in its present iterations. As Aldred and Jungnickel (2013) suggest “How bicycles fit (or fail to fit) within city landscapes has broader implications for understanding how people adapt places for use within mobility practices”, as well as many other elements of urban life. The growing “interest in promoting bicycle use” that is “evident at all levels of government” (Dill and Carr, 2003, p. 116) in the U.S., highlights the importance in understanding cycling in conceptualizing how we move around our cities. Urry (2007) would suggest that to study mobilities would be to study the definitive aspect of our current social formations. Although I do not agree with the paradigm defining nature of his approach to mobility, I do believe that by studying cycling I can not only comment on how we move through cities. Instead I suggest that through the study of

cycling I can also discuss how the bicycle comes to impinge upon on how we understand and relate to a vast number of other aspects of urban life. This is a project that studies mobility, in specificity urban mobility, but does so not as definitive of our cities. Instead our mobility practices, and their particular iterations through cycling as active transportation and recreation, become a currently important point of entry into a study of the urban more broadly. As Freund and Martin (2007) discuss the nature of mobility in cities “influences the design of all urbanized public space” (p. 40), as well as the ways in which we appropriate it day-to-day. It does not define the urban, but is an almost ubiquitous element of how we engage with cities. It is important not only to study how the proliferation of cycling oriented policies, programs, infrastructure, advocacy, public discourse, and community organization impact our forms of mobility, but also the effect on the broader dimensions of the city and experiences of urban cycling. Horton et al. (2007) urge that “the bicycle and cycling need always and everywhere to be understood in relation to the societies in which they exist” (p. 7).

Cycling directly impacts upon how we understand mobility practices in the contemporary city, but also has a myriad of ever-changing associations with the broad and complex urban setting. Cycling is a particularly relevant phenomenon within the contemporary U.S. city, and becomes a key entry point into grasping the city in its complex multiplicity. Resultantly I have drawn on various theories, and related methods, to analyze the city from personal experiences, to its impacts on communities, and how cycling functions within macro political processes in order to develop a nuanced study of the many ways in which cycling shapes cities. This is not only a mapping of the grand schemes of urban governance, of which cycling plays a

part, or cycling as a spectacular display of physicality. It is also a study of the important role cycling has for the formation and experience of the urban as a mundane and everyday act.

The bicycle may be a relatively simple technology, having been developed in its present form hundreds of years ago, but as Furness (2010) indicates “the bicycle, like the automobile, is an object that becomes meaningful through its relationship to an entire field of cultural practices, discourses, and social forces” (p. 9), as well as non-representational interactions. Indeed it is these connections, and effects that are the focus of this study. It is not a study of the bicycle in isolation, but it is a specifically relevant point of entry into understanding the ways in which cities are made and remade, through moments of order and as a result of multiple unexpected interactions.

Certainly “The common practices of walking, bicycling, bus-riding, or driving constitute distinctive forms of urban life, each with characteristic rhythms, concerns, and social interactions” (Patton, 2004, p. 21), but in this project I am particularly interested in effects that ripple out from cycling’s growing presence in U.S. cities physically, socially and politically. This seemingly simple technology has come to “have profound effects on the organization of social life and production of space in the western world” (Ash, 2013, p. 20). As such it requires continued and nuanced interrogation to generate an understanding dominant trends in urban physical activity practices, and the formation of the urban more broadly. Scholars have identified some of the ways in which cycling has had a broader impact, for example where “cycling has become explicitly associated in policy with particular kinds of health and

environmental projects (such as ‘addressing the obesity epidemic’)” (Steinbach et al, 2011, p. 1124). Yet “its meanings also extend beyond” so cycling will impact the urban in a multitude of ways (Steinbach et al, 2011, p. 1124). This project seeks to continue this critical investigation of the ways in which cycling is a part of the formation of our cities in their multiple iterations. This project extends the recent growth in “social-scientific interest” in cycling, developing a novel blend of theories and methods to study cycling as an integral experience of contemporary U.S. urban settings (Aldred and Jungnickel, 2013, p. 610).

As Amin and Thrift (2004) discuss “The modern city is so continuously in movement and, consequently, so full of unexpected interactions that all kinds of spatialities are continually being opened” (p. 232). The relational process through which the city is made is never settled, as new associations are constantly being made and re-made, sometimes between disparate elements of the urban. Powerful inequalities and marginalities are recast through the novel association of environments, people, and policies, yet new unexpected processes and relations are always also in constant becoming. Cycling is an important part of this perpetual de- and re- formation of the city at various levels from the macro political to the personally experiential. It becomes an entry point through which to grasp the overarching movement of the city towards its next iteration. As a constituent element of the urban experience for those in U.S. cities today it represents a point of analysis around which to capture the ontological messiness and flux at the base of urban life. Thus “stressing that meaning and significance of urban life is also generated in these spaces of mobility” (Jensen, 2013, p. 224) highlights the importance of studying this

changing experience of movement in our cities.

The changing ways in which we conceptualize our movement, impacted by the presence of cycling, is particularly relevant to discuss the constant movement that underpins the perpetual (re)formation of cities. It goes beyond the analysis of cycling simply as a mobility practice, instead also utilizing an analysis of cycling to generate a commentary on the city broadly. Thus it is this understanding of the emergent nature of the city that characterizes how I will look to extend this analysis. I have gone beyond structuralist, linear, and at times mechanical discussions of the city, which are often more concerned with how the city stays the same. Instead I have focused on exploring the changes that the city continues to go through in its multiple enactments. It is fundamental in understanding not only how cycling aids in the reproduction of dominant discourses of neoliberal governance, but also how it has the potential to challenge these structures of power as the city is formed anew. As Jensen (2006) suggests “The importance of the disciplining and normative regulation of the everyday life interaction, which we find exemplified within the realm of urban mobility, cannot be underestimated” (p. 160). Yet it is of equal importance to explore the vital ways in which cycling can serve to disrupt and challenge these everyday relations of power.

To ignore attempts to understand cycling as a phenomenon at multiple levels, would mean ignoring an increasingly prominent element of U.S. cities today. As Gibson (2013) suggests “progressive mayors across the urban USA have promoted cycling and bike lanes with an almost messianic zeal” (p. 2) and advocacy communities are continuing to encourage/support this position nationwide. Thus

cycling is increasingly being implicated in the ways cities are constantly being made, and remade, at the interaction of a myriad of human and non-human actors. I have sought to map this increasing implication through a theoretically informed assessment of exactly what role cycling is playing in this re-making of the city contemporaneously.

This is a project that attempts to get into the middle of this complex entity that is the contemporary American city. Doing so at various points of emphasis, attempting to address the how and why of the presence of cycling in the city, not to make the city appear as an overly logical object, but to embrace and highlight its complexity. Demonstrating what it is about the unique environment of the city that makes it so exciting as a space of repeated attempts at control, and ever-existing openness found the slippages of urban life (Benjamin, 1986). Indeed Harvey (2012) resonates this complexity and opportunity of the city when he states, “The freedom to make and remake ourselves and our cities is, I want to argue, one of the most precious yet most neglected of our human rights” (p. 4). However, despite the clear importance of the city to influence extensive dimensions of society beyond its borders, the city continues to exist as a unique space, requiring unique analytical approaches (Farias & Bender, 2010). Indeed “Urban sprawl and the urbanization of social life... do not negate the idea of cities as distinct spatial formations or imaginaries” (p. 2). Thus to study cities, in this case through cycling, is to understand that they have impacts well beyond their borders, but that they also need specific consideration as uniquely important social and spatial consolidations of human life.

The importance of the project

This project is focused on urban cycling to gain greater understanding of the experiences of a growing form of urban mobility, but also to grasp the ways in which cycling has impacted U.S. cities more broadly, and to understand the potential for its future impacts. Since the 1970's, but with more recent momentum “Bicycles have begun to change American urbanism”, representing a growing mobility practice (Stehlin, 2014, p. 1). In America, “Over the past decade there has been impressive expansion in programs and policies to promote cycling... where the federal government has taken the lead in providing increased funding and programmatic support” (Pucher & Buehler, 2011, p. 8), and mode share numbers have similarly seen an upwards trend over that same time period. As Pucher & Buehler (2011) demonstrate “the total number of bike trips in the USA more than tripled between 1977 and 2009, while the bike share of total trips almost doubled, rising from 0.6% to 1.0%” (p. 2). In particular “the U.S. Census Bureau’s American Community Survey reports almost twice as many daily bike commuters in 2009 as in 2000” (Pucher & Buehler, 2011, p. 2). Much of the expansion of cycling infrastructure and policy intended to support this greater participation has been facilitated by federal policies such as the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, the 1998 Transportation Equity Act for the Twenty-First Century (TEA21) (Pucher, Komanoff & Schimek, 1999), the Safe, Accountable, Flexible, Efficient Transportation Equity Act in 2005 (SAFETEA-LU), and to replace this most recently the Moving Ahead for Progress in the 21st Century Act in 2012 (MAP-21). This has lead to “Most states and many cities now hav[ing] programs to facilitate bicycling,

including bicycle coordinators in state departments of transportation” (Pucher, Komanoff & Schimek, 1999, p. 2).

This expansion of cycling as a means of transportation and recreation, as well as the attendant developments in infrastructure, policy and programs to support this has been, as Jones (2005) states, brought about in a context of an increasingly pervasive belief that “The bicycle is a privileged mode of transport, in part because of it having been loaded with labels such as ‘sustainable’ and ‘healthy’” (p. 827). Indeed McCarthy (2011) discusses that “A number of policies, program’s and movements (for instance, new urbanism, Active Living By Design, smart growth, transit-oriented development, urban village movements and Safe Routes to Schools) are increasingly aimed at promoting the construction of physical infrastructures that increase active travel” (p. 1439) such as cycling. Many city authorities and urban dwellers have seemingly recognized that “In many respects, the bicycle appears to be ideally suited to the urban landscape and the myriad demands of daily travel” (Blickstein, 2010, p. 886) and have therefore been involved, to varying degrees, in utilizing cycling “to reconfigure cities toward greater sustainability [making] requisite changes in land use, transportation systems and policies necessary to support alternative travel modes” (Blickstein, 2010, p. 886). Thus, cycling has seen a resurgent growth in mode share for many urban centers, but potentially more importantly policy has shifted towards greater support for expanding cycling, even if the planning for this expansion has relied upon partnering with private or voluntary entities.

As cycling becomes a more privileged form of transport, in addressing urban issues, “Both large and small cities throughout the USA have made bicycles and

bicycle infrastructure part of plans for more ‘livable’ urban environments” (Stehlin, 2014, p. 2). Thus it is not only important to study cycling as the amounts of urban journeys made are increasingly carried out on bicycle. It is also critical to understanding urban mobility, and the city at large, as a positive belief in cycling becomes common sense in urban planning. Indeed as cycling becomes aligned with the solutions to health, environmental, and economic issues through creative regeneration there is the potential that the 'bicycle-friendly' designation strips the potential for critical commentary. As those that cycle, or advocate cycling, “present themselves as the epitome of environmental correctness” (Cupples, 2011, p. 228), the paragon of health, and as the pioneers of responsible economic regeneration, it becomes even more important to develop critical perspectives of the impact of cycling for our cities. It is necessary to develop critical analyses of what these impacts are, but also whom these re-organizations of our cities as bicycle-friendly are intended to serve. As Cupples (2011) suggests we need to question “the assertion that planning for cycling = planning for equity” (p. 228). Cycling certainly has the potential to service a wide range of urban citizens in accessing the city, but there is concern that the current “uneven integration of bicycles into what remains a broadly car-centric American urbanism often privileges areas undergoing gentrification and thus potentially limits the extent to which more subaltern cyclists benefit from new developments” (Stehlin, 2014, p. 2).

Cycling is increasingly implicated in urban governance and policy, the way in which we form social relations, and how we personally experience the city, as it becomes evermore part of day-to-day urban life. For many cycling is now part of

their everyday mobility in the city, or plays a role in their recreation. For those who do not cycle, negotiating cyclists has also become a more common part of their urban experience, either as they walk through the city or dodge people riding bikes whilst in their cars. As a result it is key to study cycling at multiple levels, not only its influence in policy and urban infrastructure. Certainly as demonstrated the role of cycling in policy and urban planning is central to a critical analysis, but it is also important to understand how cycling structures our social networks, and attempt to grasp our experiential engagement with riding a bike in the city.

Cycling underpins experiences of being physically active, and being mobile in the city that “substantially differ from pedestrians, motorists or transit users” (Forsyth and Krizek, 2011, p. 532). Indeed to “plainly say that bicycles exist as an alternative to the automobile would be to overly simplify these objects both materially and socially” (Pesses, 2010, p. 2). Where cycling fails to fit into other mobility categories, it provides a unique entry point within the urban that pulls together elements from all of these other mobility experiences. It is important to study how cycling facilitates the extension of previously existing meanings of, and articulations between, urban mobilities and the city more broadly, but also creates novel or unexpected associations. Stehlin (2014) suggests that cycling fits within Florida's (2003, 2004) overly narrow and exclusive plan for urban regeneration focused on catering to the creative class, and the ideas of inter-urban competition for capital, set within a pervasive context of neoliberal urban governance. Yet at the same time cycling has become a part of social movements to reclaim urban streetscapes, challenging the

dominant order of car centric design through events like Critical Mass and The Bike Party (Furness, 2007; Mapes, 2009).

In addition to these potentially unique and overlapping effects on the shape of the city socially and politically, cycling entails specific ways of sensing the city as a practice that “stimulates a highly embodied understanding of the urban” (Jones, 2005, p. 814). It is important to consider the affective dimensions of cycling in the city, as “When cycling, the interactive relationship between body and environment can be quite intense” (van Duppen and Spierings, 2013, p. 235). Indeed Thrift (2004) suggests that cities are “roiling maelstroms of affect” (p. 57), so where cycling facilitates particularly intense affective experiences it becomes a point of entry into expanding “accounts of cycling as embodied practice” (van Duppen and Spierings, 2013, p. 234), within a particularly intense affective, sensual, and tangible space of feeling.

Ultimately the growing presence of cycling, and its effects politically, socio-culturally, and experientially require further detailed study at multiple levels of analysis. Cycling research and advocacy has focused primarily on increasing participation, with a positive assumption of cycling's effects as “an active, environmentally friendly mode of travel” (Moudon, 2005, p. 246). Therefore it is important to develop nuanced, but also essentially critical interrogations of how cycling is affecting our mobility experiences and the re-formation of the city broadly, with the goal of ensuring the potential benefits of cycling come to fruition for all segments of urban populations.

Chapter outlines – Structure

Chapter 1

The first chapter is a broad introduction to the themes that have been central to popular press, advocacy, and public policy discourses from the identified “bicycle boom in the early 1970s” until the present day (Pucher, Komanoff, and Schimek, 1999, p. 6). In presenting this contextualizing chapter I have focused on several key discourses, although it must be recognized that these are only a partial representation of discussions of cycling over this time. In addition as will be come clear, each of these themes takes on a particular framing relative to their spaces and times of expression. Nonetheless in providing this broad overview chapter the specificities of each city specific chapter is tied together, and there is a space for comparing and contrasting elements from each section of the project.

Three themes have come to the forefront of this discussion, those centered on cycling as an environmentally sustainable (Cupples and Ridley, 2008), the source of direct and indirect economic rejuvenation (Stehlin, 2013), as well as having “health-enhancing potential” (Moudon, 2005, p. 246). However, several other themes have been important to mention such as: safety, fossil fuel use, patterns of benchmarking and modeling, ideas of forming the 'responsible cyclist', and the development of federal policy. I have analyzed advocacy, policy, and popular press documents accessed through archives, online, and shared personal communications, highlighting some of the specific orientations to these themes within three cities I have spent time in. I have also provided information from national organizations, as well as examples from other U.S. cities. This information is at times supplemented by interview data,

which was generated from experiences across all of my research sites. This interview data is provided in support of the mapping of text documents, so as to further construct the current context surrounding cycling, and its changes over time.

Chapter 2

The second chapter is the first of the city specific chapters. Thus whilst I continue to draw on the relations between Boston and national, as well as international processes, this section focuses primarily on policy within Boston and the surrounding region as it has evolved in relation to processes of neoliberal, creative, green, and healthy city governance. I build upon the radical contextualization of the present location of cycling within the U.S. constructed in the first chapter. As such this centers on the analysis of cycling focused policy in Boston, relating its development to “how austerity measures as well as new and informal modes of urban governance, welfare administration, and poverty management crystallize into policy regimes and power repertoires” in the city (Fairbanks, 2012, p. 546).

I have spent extensive time analyzing municipal, and regional policy documents from over the last forty-four years. However there is also discussion of policy at a federal and state level, as these intimately relate to the particular municipal developments in cycling oriented policy within the city. As such, I have addressed how the consideration of cycling by officials and planners, technocrats and academics inform the ways in which they attempt to govern the shape of the city. Decisions about cycling policy can be “socially inclusive and address human centered spatialities of the city”, but they can also “add to the production of subtle boundaries

between groups of urban citizens through their spatial design and the cycle cultures they interweave with” (Jensen, 2013, p. 221). This is not to suggest that policy-makers, and their documents, have the ability to dictate urban space, but that they must be taken seriously as important actors in shaping the constant re-formation of our cities.

Cycling policy has expanded over the period since the 1970’s, but this has been in constant negotiation with an increasing normalization of the shift to urban entrepreneurialism (Harvey, 2001). As cities compete for capital, cycling has become a key symbol in attempts to attract investment and in-migration of some concept of a ‘creative class’ (Florida, 2003), that while explicitly announced by some municipalities – Baltimore’s ‘creative Baltimore initiative’ is a good example – many of these sentiments resonate indirectly in the intentions of a number of policy documents (Ponzini and Rossi, 2010). This image of the ‘bike-friendly’ city also links into the growing discourse of ‘livable cities’ (Green et al, 2012), ‘healthy cities’ (Baum, 1993), and at a more micro levels the idea of ‘complete streets design’ (Boston DOT, 2013b). Each term is invested with certain meanings that align with bicycles, and the “interest of fostering the cosmopolitan ethos they connote” (Stehlin, 2014, p. 2). By “creating attractive conditions for walking and cycling through good urban design” (Kenworthy, 2007, p. 48) cities can project a commitment to urban sustainability and public health. However, it also can be a relatively cheap way to manage “a sustainable transport system” post recession (Lee, 2010, p. 214). Thus cycling is understood to play a direct role in creating healthy, economically and environmentally sustainable cities as livable communities. A formation of the city

that is of interest to the city of Boston in the context of ‘creative city initiatives’ designed to attract a new class of gentrifying citizens for whom these spaces and labels are key amenities (Gibson, 2013).

Cycling has the potential to be a part of the attempts to address current urban issues. However, it is important to interrogate whether the development of policy and governmental programming has sought to ensure these are accrued equally across Boston. Or if rather it underpins the leveraging of cycling for neoliberal governance, resulting in “incomers and the creative class disproportionately benefit[ing] from this public and private investment” (Pratt, 2011, p. 126). This chapter is an analysis of whether infrastructure and programs like the lauded ‘Hubway’ bike share program help to reform the city in more just ways, or does it service the creative neoliberal intentions of the cities governance. Is a focus on cycling aimed at a fully integrated approach to providing all residents (especially those that need it most!) with easy and accessible modes of mobility and recreation? Or is it instead an exclusive program of investment that in its cost efficiency continues to accentuate patterns of governmental retrenchment and fiscal austerity within municipal spending?

Chapter 3

In the third chapter of the project I have investigated the ways in which these macro political processes are intimately tied into the socio-cultural formation of the city. With an analysis of the impact of cycling on the broad political processes of contemporary urban governance in place, I have investigated the complicated and specific ways in which these policies and forms of governance are expressed through

the assembling of a multitude of actors. Through studying the networks of actors, policies, hierarchies of power, and infrastructures that come together, and are resultant of various cycling events in Baltimore, I demonstrate the complex and simultaneously contradictory ways in which policy and urban governance is enacted. Cycling events become a point of entry to discuss the “adaptivity rather than fixity or essence” of the city as assemblage (Venn, 2006, p. 107). Thinking the city as assemblage requires a “move from structures to relationships, from temporal stability to uncertain periods of emergence and heterogeneous multiplicities, resisting the siren call of final or stable states, which are the foundations of classical social theory” (Legg, 2009, p. 238). Thus, these events highlight the often unexpected and contingent ways through which the city is formed, the key associations that are made and that have multiple outcomes, rather than suggesting an enduring structuring of cycling in Baltimore. Through spending time in Baltimore, observing and interviewing with various groups at various events I have been able to develop an informative, if partial tracing of those that play a role in shaping Baltimore. This research approach has not only provided the grounds upon which to map peoples engagement with cycling in the city, but has also allowed me to discuss the ways in which this is always at the same time a discussion of policies, programs and infrastructure that has been implemented in the city and beyond, across various geographical points and at multiple points in time.

The city is in part an expression of governmental power, but is also flexible and “is the source of emergent properties” (Marcus and Saka, 2006, p. 103) that do not always conform to dominant logics of neoliberal governance, and the inequalities

of gender and race upon which these logics often rely (Liu, 2006). The approach to governing these new spaces and practices of mobility in Baltimore in many ways are demonstrative of a context in which “politicians and planners are significantly less inclined to champion mega [or indeed any] projects if inhabited by less powerful groups in non-premium spaces” (MacLeod, 2011, p. 2642). However, at the same time the multiple and overlapping iterations of the city serve to create disruptions, and potential for the formation of the city to be otherwise. An open potential to the city that led to an odd confluence of factors resulting in events like the Baltimore Bike Party being held in some of the city’s poorest neighborhoods, some also being spaces of greatest infrastructural neglect.

The city comes about through the changing associations of multiple actors, policies, and infrastructures. Thus through thinking the city as assemblage I have sought to “open up new questions, as well as new forms of engagement, [that do] not merely tell us what we have known more or less all along” (Allen, 2011, p. 156). It questions the complexity of how policies and neoliberal rationalities are articulated with local communities and context. Whilst at the same time being okay with these ultimately being messy confluences of actors and intentions, rather than the expression of binary struggle for power between those that govern and those that are governed (Newman, 2013). The city is resultant of an overlapping and interaction of associations that connect actors near and far, relations that both expand upon and challenge normalized inequalities in U.S. cities. Those who live within the city and express resistance to its dominant logics are often times simultaneously the same people that play direct or indirect roles in its formal and less formal becomings. At

the same time people who may never have stepped foot in Baltimore come to have influence on its formation. As Baltimore deals with specific if not unique processes of de-industrialization, that stretch back into its history, as well as shifts towards neoliberal logics of urban governance, it creates an intriguing space to understand the complexities of the city. It highlights repetitions of gender, class, and race based marginalization's that have played a role in U.S. cities for many decades. However, "a critical attention to assemblages allows us to overcome the easy analytical dichotomies" (McCann et al, 2013, p. 584), and has the potential to break new ground in conceiving of the active urban body as embroiled in complex, emergent, and layered urban settings.

This chapter provides an 'on-the-ground' point of entry into discussing the associations and practices that are in some part productive of, resultant of, and surround policy and governance as it stands to play some role in the emergence of the city. Through building upon the analysis in chapter two, suggesting the specificities of how political governance has developed in Baltimore, I have sought to understand Baltimore not as some predetermined, and ordered "whole, but [consider it as] a composite entity" (Bender, 2010, p. 304), embracing it as a complex and at times messy network of associations between often disparate elements. The assemblage presents itself as an ontological model that allows the capacity to conceptualize the social world in a process of constant movement, re-formation and emergence (Venn, 2006).

In specificity this approach demands considering certain characteristics of the urban: that "space and time are not external frameworks but are emergent; points

(which might be entities or events) that are distant can also be proximal (categorically as well as spatially and temporally); and transformations of the relations between points are not causal or linear, but open and immanent” (Lury, Parisi and Terranova, 2012, p. 12). It is thus a model through which to think about the complexity, emergence, and flattened nature of the urban setting. It is an approach more readily focused on the practices through which the city and its spaces are always resultant of the emergent interaction of complex networks of actors, than a study of how outcomes are bound to dominant structures of power (McFarlane, 2011b).

Chapter 4

In the final chapter I engage with the ways in which people connect directly with the city as a space of various human and non-human actors. Through studying the personal experiences of riding in Washington DC I look to explore the ways in which we engage with the city through cycling beyond the symbolic, ideological, or representational dimension of the city. It is an exploration of whether the ways in which the city has been formed through political governance (Chapter two) and by associations of social actors has non-representational effects on those that cycle in the city. In other words this is an exploration of the affective plane of the city. “Affective forms of bodily encounters receive much less academic attention than the physical or tangible” (Windram-Geddes, 2013, p. 42), and as such this chapter is an attempt to further the study of the affective resonances that form through the relational nature of being physically active within urban settings.

I understand that “what stands in the way [of studying this affective dimension] is a difficulty in conceptualising affective experience” (Windram-Geddes, 2013, p. 42) for study and representation. Despite this challenge I studied the affective experience of cycling in a city, as although affect may shy away from explanation, it is an always 'before' and present plane to the social that cannot be ignored. This chapter is an attempt to analyze the ways in which actors are assembled, as various collections of sometimes disparate people and non-human actors to have both representational, but always and at the same non-representational outcomes. As Roy (2013) suggests, “Despite its non-cognitive, visceral nature, affect is nonetheless socially powerful” (p. 332). Resultantly this section to my project is as important to forming a comprehensive study of cycling in the city, as is the historically informed study of policy, or the assemblage informed study of cycling communities, even if it is less tangible and complete.

This chapter takes seriously that at the most fundamental level it is not only the socio-spatial body of the city that is always in production, but that its emergence is bound to the becoming of the material, experienced as affective resonances. To study this important aspect of the city, researchers must “attend to the qualitative transformations that are continually unfolding within a body” (Saldanha, 2010, p. 2415) in relation to the constellation of other elements in the urban setting. These bodies may indeed be human individuals, but is always also environments and a range of non-human actors. This means that the physicality of individual becoming, through the process of affecting and being affected in a relational sense is that upon which the city emerges. As Saldanha (2010) states, “Affect knits together lines of potentiality in

its encounter, 'behind' a mingling of bodies" (p. 2415). As such the non-representational dimensions to our forms of felt encounters are also constitutive of the city in its multiple forms. A fundamentally physical practice such as cycling, necessitating multifarious moments of affectation, is core to making the city. Indeed "The body 'itself' - whether a social body or individual human being - is in a constant state of de- and re-composition in relation to other bodies, even in the most mundane acts of everyday reproduction", yet it is in the mundane act of cycling that this is accentuated (Ruddick, 2010, p. 28). As Jones (2012) discusses it is the sensorial indiscipline of cycling within the political and spatial landscape of the contemporary city that positions it as a physical activity more readily imbued with affective intensities.

Cycling in its mobility, as well as its capacity for the flowing 're-composition' of the body through its facilitation of affective intensities, give it a privileged position to investigate the non-representational dimensions to the urban. In Washington DC cycling is at the forefront of relations of power in the city. Cycling is integral to the related hierarchies of race and class in DC (Gibson, 2013). However, in its affective rawness cycling also places people into experiences that consistently escape intentions of power, providing the potential for engaging with, and shaping the city differently. Therefore an exploration of the affective dimension of cycling, is experimental in its methods, but is fundamental to the ontological underpinnings of this project. A discussion of the affective dimension to cycling in the urban setting, not only informs a discussion of the complex manners in which policy and planning attempts to enforce powerful subjectivations (Foucault, 1983) beyond the

representational, but also informs how uneven creative city investments can potentially lead to uneven affective urban terrains.

An introduction to methods

In studying cycling as a complex practice, one that has specific social, political and affective impacts, I have sought to use a broad set of methods to address multiple elements of the urban cycling experience. I believe the various impacts that cycling has are intimately related. Thus, the research methods utilized in this project may be somewhat distinct at times, but in other moments they very much overlap. For instance the assemblage inspired ethno-methods that primarily informed my time in Baltimore also draw on an analysis of policy and urban governance. Thus I will briefly introduce here, and discuss at more length in each chapter, some very specific methodological techniques, but each must be understood as part of a fully integrated research project that is the result of the aggregation of data and analyses drawn from the confluence of all these research practices. As Horton and Kraftl (2009) suggest

it is not – still not – uncommon to witness the domain of 'policy-relevant' social- scientific work being constituted as entirely different from, and mutually excluded from, the domain of work concerned with theoretical and empirical investigations of emotion and affect (p. 2986).

Yet it is the aim of this project to carry out a range of methods that will ultimately bring together investigations into each dimension of the ways in which

bicycles play a role in the re-formation of the city affectively, socially, politically, symbolically, and culturally. By integrating these discussions at various points it will become evident that policy, social relations and affective dimensions to experience are intimately tied together, so that policy and social formations are understood to “always already [be] emotional and affective at heart” and that “affective intensities are always already latently political” and social (Horton and Kraftl, 2009, p. 2986).

Critical Textual Analysis: popular discourse and policy

The first two chapters have both focused on the critical analysis of texts, considering them as embedded with the potential for multiple meanings and uses (Schroder, 2007). This has been primarily developed through a Critical Discourse Analysis (CDA) but also includes forms of Critical Policy Analysis (CPA), an approach that considers policy “as complex, inherently political, and infused with values” (Winton, 2013, p. 159). This combination has resulted in a hybridized CDA/CPA analysis of policy, popular press, and advocacy documents throughout both chapters, but with greater focus specific iterations of municipal and regional policy in chapter two.

As a term Critical Discourse Analysis (CDA) encompasses a wide range of approaches, but the mode of my analysis in this project can be specifically described as a “socio-politically conscious and oppositional way of investigating language, discourse and communication” (van Dijk, 1995, p. 17). I have critically and contextually interrogated documents latent with discourses and policy that center on cycling in cities. However, I have also developed a “critical perspective [that]

understands policy as much more than these texts; it also includes individuals, groups, practices, events, ideas, power, struggles, and compromises” (Winton, 2013, p. 159). Thus although critical analysis of textual documents is central to these chapters, they both draw on interview data to inform the ways in which these discourses and policies were formed. I have highlighted and drawn out specific segments of text to explicate cycling discourse and policy since the 1970’s, whilst also placing each document in relation to the general trends and themes of policy, advocacy, and popular discourse.

I have gone through the process of close reading a broad selection of texts, whilst also mapping the relations between these texts and other data I have collected such as interview data. As Jorgensen & Phillips (2002) state discourse “is both a form of action through which people can change the world and a form of action which is socially and historically situated” (p. 62). As such CDA is not only a close reading of language on the page, but is a process of connecting these lingual expressions to wider contexts and forces. Certainly in making this analysis relevant to the wider project, I will lean towards the macroanalysis outlined by Luke (2002), but will be involved in the process described here in this quote, taking up CDA/CPA as “a principled and transparent shunting back and forth between the microanalysis of text... and the macroanalysis of social formations, institutions, and power relations that these texts index and construct” (Luke, 2002, p. 100).

Whilst chapter one utilizes CDA to develop a radical contextualization of cycling that grounds the entire project, chapter two utilizes a more specific application of analyzing policy and other texts to construct an understanding of cycling’s location within the political process and in relation to forms of urban

governance.

Assemblage

The assemblage functions as a philosophy of method, rather than being a method in itself. As such assemblage is a philosophical mode through which to think with and map the complexity of the urban, rather than being a prescriptive method of inquiry. It is an approach that means “Rather than focusing on cities as resultant formations, assemblage thinking is interested in emergence and process, and in multiple temporalities and possibilities” (McFarlane, 2011a, p. 206). To follow this assemblage thinking, directing the use of methods, I have had to draw from a wide range of specific research practices. Indeed any form of analysis that allows the researcher to map the meaningful social connections that “avoids the generalisation and abstraction of modernist theories, exploring instead the specific and the concrete, by which it is possible to locate and explore heterogeneity” is useful (Ruming, 2009, p. 458). I particularly drew from interviewing, observation, policy analysis, and mobile visual methods to map connections between actors, political processes, policies, and the environments that make up Baltimore. The “time-space in which assemblage is imagined is inherently unstable and infused with movement and change” and as a theory “It generates enduring puzzles about ‘process’ and ‘relationship’ rather than leading to systematic understandings... It offers an odd, irregular, time-limited object for contemplation” (Marcus and Saka, 2006, p. 102).

The urban as assemblage offers a continually moving and open-ended conception of the focus of study for any method. The assemblage conveys a particular

sensibility in the application of various methods, utilizing them to explore how the city is resultant of often-complex associations between actors. It is a theory of method that gives particular primacy to following the relations that are made meaningful between actors, rather attempting to fix actors, institutions, processes, events, or spaces into a priori frameworks. There is a commitment to follow what is observed, rather than projecting information collected into an assumed social context. Instead it is a flexible research methodology that has been reactive to the messy, emergent, and therefore always “a posteriori” (Lury, Parisi and Terranova, 2012, p. 5) study of the urban. It is an approach to studying the city with “an ethos of engagement attuned to the possibilities of socio-spatial formations to be otherwise within various constraints and historical trajectories” (McFarlane and Anderson, 2011, p. 162). It draws on multiple methods as tools to help map the associations that exist, but also the potential embedded in that these this assemblage brings together contradictions that creates slippages and potential for cycling in the city to be otherwise.

Affect

In the last chapter I have drawn on a novel aggregation of methodological techniques in an attempt to grasp at the affective dimension to cycling within the city. It is a chapter that is representative of the need for cycling “to be rethought in new and different ways and, as urged by Horton et al. (2007), reimagined outside of its pre-existing conventions.” (Vreugdenhil and Williams, 2013, p. 284). I say grasp as “It is precisely the pre-personal, diffuse nature of affect that exists prior to, or subtends, subjective meanings and actions that makes it resistant to analysis”

(Thoburn, 2007, p. 84). The non-representational plane of affectivity will always shy away from representation, so that “as concepts go, affect is not proving the easiest to grasp” (Lorimer, 2008, p. 551). Yet, through an unsettling concern with the study of affect being wholly resigned to a fate of always only being studied as either 'a detached theoretical discussion' or 'reduced to a positivistic biologism', I have sought more.

My research methods may well be a rough and blunt instrument, one that will need continual refinement, and one that will never be complete. However, to leave such an important aspect of our lived experience to be either an uncritical object of science, or solely dealt with through detached philosophizing was not enough. Bringing together the measurement of heart rate and Galvanic Skin Response data, alongside emotive field notes, GPS, and video I can discuss some elements of the various relational moments of cycling city, and the ways I was affected. This approach has been underpinned by extensive theoretical work to address the ontological questions that comprehending affect forces us to engage. In turn this ontological and theoretical framework, through which I have employed these various methods, has encouraged a particular understanding of the results they can produce. Each element contributes to the whole, and as such no one element is seen to say much about the sensorial experience of cycling. Additionally any of the results are not definitive, not being able to clearly mark out moments of 'affectivity'. Instead they are limited suggestions of the affective dimension of urban life expressed through their combination.

For this study it is understood that “life is composed in the midst of affects” (Lorimer, 2008, p. 552) so that it is a contingency to the relationality of every moment of life. Affect describes the part of the “messiness of the experiential, the unfolding of bodies into the world... how we are touched by what is near” (Ahmed, 2008, p. 10). As such my methods, through aggregation, are an attempt to directly account for those elements present in the relational moment, and my affected state pre- and post- the cognitive process. The methods used embrace that “Ethnographic participation and autoethnography can highlight changes in affective capacity” (Larsen, 2013, p. 2). However, through combination with the recording of other potentially more direct data that relates to the bodily response prior to the cognitive process, I seek to expand the points at which there is an ability to detect the affective and capture the setting in which that moment was experienced. As Roy (2013) suggests “there has been a tendency to let other important aspects of body space relations such as smells, tastes, gestures, reactions, clothing, glances, and touches . . . slip away unnoticed and/or undocumented” (p. 333). This aggregation of methods then draws on the ability of autoethnography to speak to the affective, whilst extending this by not letting other informative data slip away.

Locating the project

A PCS project

The research presented within this dissertation certainly falls within the Physical Cultural Studies (PCS) project in advancing “the critical and theoretical analysis of physical culture, in all its myriad forms” (Silk and Andrews, 2011, p. 7).

This is not only a PCS project as it is produced by a member of the working group of scholars at the University of Maryland. It is also importantly a project that adheres to many of the core tenets of what a PCS research project attempts to do.

As a means of positioning this dissertation within PCS I look to discuss the points of similarity and departure between this research and some of the key understandings of the project put forward by other scholars. Indeed although there are certain sentiments of PCS that I have adhered to in my work, there are clear points of separation theoretically and practically from the British Cultural Studies tradition in which certain strands of PCS are grounded. Additionally I look to put forward my definition of 'physical culture', not as a definitive statement, but to provide a working concept around which this project has been built. PCS is a broad project with some simple foundational sentiments. It is not a project that seeks to make boundaries, other than in a strategic act. It has become a means through which to give voice to a small segment of scholars whom share these sentiments in carrying out their often-disparate work.

For myself as a self identified PCS scholar the practice of PCS “follows a process of connecting and articulating... [physical cultural] “events” to [their] multiple material, institutional, and discursive determinations” (Andrews, 2008, p. 58). It is a theoretically informed, reflexive, and critical research practice concerned with relations of power, that seeks to go “beyond philosophy and critique” to have some social impact in the various forms this may take (Atkinson, 2011, p. 139). This broad definition does not preclude the ability of practitioners from drawing on a range of theories and methods, but they do offer some rigor, some expectation to do good

work. Thus although I will provide greater specificity of my application of PCS as it is utilized in this study, I do not do so to suggest a broader definition of the work that is considered to be within the sensibilities of the PCS project writ large.

As Andrews (2008) points out, the project of PCS takes up a broad discussion of physical activity. Indeed the calculated naming of the project around the 'physical' was a means to signify this shift towards a broad consideration of an “ontologically complex” object of study (Andrews, 2008, p. 56). Indeed PCS is not purely concerned with sport. Sport is often used to refer to more than it can adequately make commentary on, yet is too restrictive to encompass that which is of interest within the PCS project. Indeed for my own mobilization here the physical comes to designate the element of the lived experience centered on the body. However, the body is also not enough, indeed this would make our project collapsible into the area of 'body studies' (although PCS scholars do draw on body studies literature). Instead it is a consideration of the aspects of our social lives that at the base depend on the body in its (in)activity. In other words, although at times the central point of study may be textual, symbolic or structural, for these various dimensions to the social world to be of focus in PCS research they must center on the (in)active body. This definition may remain overly broad, or equally too narrow, for certain readers. Yet I can provide some assurance for readers that react in both manners.

Firstly in this dissertation project I will be further narrowing the specificity of the 'physical' under analysis. In particular cycling will be the focal point of this discussion as an active bodily practice (practice being used here in the sense of an enactment of association between human and non-human actors that will have

multifarious impacts symbolically, politically, materially, and affectively). Secondly this working definition of the physical functions as a placeholder, a relativist point to anchor my discussion. This is not a definition of the physical held by all PCS 'practitioners', it has not been the definition for the project in the past, and it certainly will not be the definition for the project in the future. As such the physical is a term wholly relational to various institutions and actors associated with its definition in any one moment. I have provided a specific definition of the physical, and direction of study for this project, but there should be no mistake that this is done to suggest a broader definition for other PCS projects.

This is a study not only of the social formations that may coalesce around the physically (in)active body, but also the specific meanings and relations of power entailed by the associations that relate to the physical. Therefore physical culture is the complex web of meaningful and powerful associations constantly in the process of becoming entangled around bodily (in)action. These physically informed associations are always symbolic, political and ideological, but this is only ever in part. They are always at the same time meaningful affectively, in a non-representational manner that is extra to the conscious process, but no less meaningful. In this sense 'culture' in my application for a PCS project relies heavily on Williams (1961) discussion that culture is the result of the complex interaction of many elements within a whole way of life. Within this conception then any cultural analysis for Williams (1961):

will also include analysis of elements in the way of life that to followers of the other definitions are not “culture” at all; the organization of production, the structure of the family, the structure of institutions which express or govern social relationships, the characteristic forms through which members of the society communicate (p. 42).

In this sense a study of physical culture is the exploration and analysis of the complex 'constellation' of processes and practices that abound from the physical act. Again in specificity, then, this project, within which cycling is the particular physical act of interest I am partaking in a study of a complex array of processes and practices undertaken by a multitude of actors, human and non-human, in connection with riding a bicycle. These associations may be multiple, stretch over various geographical locations, points in time and impact back upon differing populations. However, at the base the physical act of cycling, as a meaningful cultural practice, is the point of study as it informs the re-formation of the urban setting within which it takes place.

Having located the specificities of the terms 'physical' and 'cultural' that are utilized in this project, I now turn to further position my research within PCS. There are other sensibilities about my approach that bring it within the aims of PCS. Specifically these are the project's open political commitments, and hopeful political intents, as well as its adherence to the use of theory and expansive, rather than reductive, methodological techniques. Firstly in terms of the political aspirations of this project, there is little pretense that there is an underlying political agenda to this project. Certainly there lacks a clearly 'from the barricades' Marxist call to revolution,

however underlying this research there is a clear political interest. As Lather (1986) points out, academic work is always political, and there is a fallacy of positivistic independence to the research act. As such I do not wish to hide the political aspirations of this dissertation. Indeed I hope through an increasingly complex and nuanced discussion of physical culture within the urban setting I can add complexity back into the political critiques of the urban. Through providing an analysis that embraces incongruity in the urban setting as integral to its formation I seek to readjust political intents away from simplified grand gestures, rather than disregarding the points of incoherence as they fail to fit within particular conception of the city.

I have developed an analysis that is not bound up in assumed urban structures, but that through a radically “a posteriori” (Lury, Parisi and Terranova, 2012, p. 5) approach can provide mappings of the emergent urban assemblage. It is not bound to conceptualize phenomena as extensions of historical constraints, but to see the open possibility in constant re-formation. In this sense it is a project in keeping with Andrews (2008) suggestion that “at its most fundamental level, PCS seeks to “construct a political history of the (physical cultural) present” (Grossberg, 2006, p. 2) through which it becomes possible to construct politically expedient physical cultural possibilities out of the historical” (p. 58). There is modesty to the political nature of my dissertation, but there is still very much a clear and present politics to my research. The projects outcomes may not make grand impacts, yet it still has important political function and therefore adheres to the political imperative of PCS to be “an activist-minded project” (Andrews and Giardina, 2008, p. 408). I look to advance research that has “an unequivocal “commitment to progressive social

change” (Miller, 2001, p. 1), and thereby struggles to produce the type of knowledge through which it would be in a position to intervene into the broader social world, and make a difference” (Silk and Andrews, 2011, p. 10). However, In adapting my practice of PCS to draw on conceptions of the assemblage (Deleuze and Guattari, 1987), and the radically relational conception of affect (Roy, 2013) there is an important shift in the idea of power, and therefore a change in political potential of this research. This means that I continue to be “unembarrassed by the label political, and unafraid to consummate a relationship with emancipatory consciousness” (Silk and Andrews, 2011, p. 10). Also, that in moving away from a dialectic conception of power, may mean we are bound “To add in a messy way to a messy account of a messy world” (Latour, 2007, p. 136), but that this certainly still has political effects. Surely it is better to successfully achieve modest political goals than to harbor grand political intents in relation to the systems inherent contradictions, in hopes of encouraging a destructive rupture, for which “we may end up waiting a long time” (Amin and Thrift, 2007, p. 114).

The ontologically necessary modesty of politics within the assemblage is indeed not unique in sentiment. It brings a project oriented around assemblage urbanism to a similar political and analytical point in the PCS project as that inspired by Grossberg (2010) when he states “the practice of cultural studies need not seek completeness; it need not attempt to equally encompass all the domains of human life, all of the complexity that is formed at the intersections of everyday and institutional life” (p. 5). Yet, in consideration of the over-arching history of politics in studies of the urban, a politics of recognition, adding critical analyses to inform a greater

understanding of place and the need for constant work in the face of a complex and emergent world, may do more to bring about effective critique and social change.

A growing concern: physical cultural urbanism

The 'site' of this project has been the city, in particular the north American city, and in even further particularity Washington DC, Boston, and Baltimore. It is a study of the particularities of urban cycling as “Cities have always been stages for politics of a different sort than their hinterlands” (Holston and Appadurai, 1999, p. 3). Indeed cycling, and its discursive framings within the environment, economic and health crises of the nation spill beyond the urban. However, there is a greater relevance and intensification to every element of this project within an analysis of urban physical cultural practices. It has been suggested that cities are “the place where the business of modern society gets done”, and although not wishing to overly romanticize or reify the city as an entity I suggest that it does present some key and specific dimensions to investigating lived experience more broadly (Holston and Appadurai, 1999, p. 3). As has become clear throughout engaging with cycling policy and scholarship urban cycling has a particular significance, even if in policy this is a function of the city often being drawn upon as a political unit, one which has been formed as a scale to matter, and therefore having particular policy considerations (e.g. the development of municipal bicycle master plans).

What is also the case is that the urban spaces of the world are growing, condensing populations, and thus creating ever more complex and intricate networks of people, symbols, spaces, political processes, and institutions. Over at least one

third of the world's populations currently resides in cities (Nadarajah & Yamamoto, 2007), and despite the relative slowing of western urbanizing compared to the growth of city populations during their historical processes of industrialization, developing nations are still seeing massive growth in urban populations. Nadarajah and Yamamoto (2007) suggest that within developing nations globally urban populations are growing at around 60 million people a year. This growth in the urban centers of the world (with China, India and Brazil leading the way currently), the intensification of marginalization and inequalities in the city, and the recognition of the extended impact of cities on areas beyond their permeable borders (Hubbard, 2007), again highlighting the need for a project centered in urban structures and experiences. It becomes a key investigative space that condenses the many attempts to wield powerful associations and logics where Corburn (2009) suggests that it is a point of condensing forms of social inequality, exploitation and forms of control and oppression, but also through the ever more distributed agencies at work within the constant becoming of the city it is additionally always a porous aggregation of practices and relations. It is resultant of raw affective intensities, bodies in constant flux through their relational affectations. Yet this specific concern with the city that I have demonstrated in this project is not a novel concern. Indeed the city has long been a site of study across multiple fields, disciplines, and projects. Taking up various technical scientific or socio-spatial and cultural theoretical strands, information on the urban has proliferated.

For this project there are certain strands in the analysis of cities that have become either fundamental in informing my modes of inquiry, or as important points

of departure against which my scholarly proclivities can be cast. I will first discuss the major strand of analysis of the city from which I am deviating, and then secondly I will explore briefly the strand of urban analysis within which I am working. This is not done to show that my analysis is radically a shift from one to the other, but it does highlight some of the significant points of departure that I have taken in conceptualizing the role of cycling in the contemporary U.S. city.

The major strand of urban scholarship that I am marking myself in difference from is that of a Marxist urbanism. This is an approach exemplified in work such as “Peck and Theodore’s (2010b) work on policy mobilities, which is informed by neo-Marxist political economy” (McCann, 2011, p. 146). However, whilst this strand obviously descends from the consideration of the city in Marx’s writing, it has not been a singular lineage. Many iterations of urban analysis have been born out of a Marxist inspiration in analyzing the urban setting, from Benjamin to Lefebvre. Indeed to state that it is a Marxist strand is important to point towards some of the key theoretical combinations and advancement that Marx signaled, however this naming of this approach should not be ignorant of that at times Marxism and Urbanism were uneasy bedfellows (Merrifield, 2002). There have been certain scholars that have taken this Marxist model further than Marx ever did himself. Even from very early on Engels – Marx’s peer, co-author, and at times financial backer – specifically discussed the city through a Marxist lens in *The Condition of the Working Class in England* (1999). Yet it is the dialectic, economic, and structuralist nature of Marx’s work, taken up at times within the city that has become the hallmark of this strand that extends down to influential and important contemporary urban scholars such as David

Harvey, Neil Brenner and Nik Theodore, among others. This urban political economy approach has in turn come to underpin critical analyses of the contemporary neoliberal capitalist city. Whilst eschewing any commitment to a later mechanical Marxist framework, these structuralist critiques of urban politics and economics still draw on particular sentiments that can be traced back to Marx, and his brand of Hegelian dialecticism, a scholar to which Marx had a “deep debt” (Merrifield, 2002, p. 13). It is a highly informative group of scholars that draw on Marxist, and neo-Marxist sensibilities in studying the urban, yet I have sought to shift to an analysis that relies on different ontological and theoretical standpoints.

What I am proposing is a radically flattened, emergent and complex conception of the urban. Shifting away from neat scales and assumed hierarchical structures, I look to consider the city in constant becoming through the representational associations and relational affectations that exist in flux between a multitude of human actors, as well as urban policies, institutions of governance, and infrastructures. As such I look to conceptualize the urban as assemblage, constructing a mapping of the associations from which the city formed. It is an approach to the city that has necessitated a “move beyond a reliance on the mechanical and organic to include transductive and transitive modes of relating” in forming conceptions of the city (Lury, Parisi and Terranova, 2012, p. 5). It is an approach more concerned with the processes and practices that form the city, its spatial and temporal framings as outcomes of these, rather than space and time being contexts upon which life is lived. It thus shifts to “a politics of the minor register – forever changing, always fragmentary, full of small gains and losses that never quite add up, embroiled in many

spatial circuits, and ‘political’ but in nontraditional ways” (Amin and Thrift, 2004, p. 232). As Amin and Thrift (2004) go on to say “Such a politics is not of minor significance” (Amin and Thrift, 2004, p. 232), but is a shift that is reflective of the ontology at the base of assemblage urbanism.

As will become clear throughout this analysis I will at times draw on more traditional methods, using theory at times that can fit within a critical urban, Marxist, or structuralist cultural theoretical framework, but each is taken up within an ontological shift towards assemblage urbanism. Where categories appear these are not a priori to the empirical, they are always momentary (not assumed to function in the next moment), and are always discussions of the relational interactions of various actors. In other words structures can be made to matter, and power can be enacted, but these are unknowable in advance, momentary, and blend actions of various forms of intention or lack thereof. Throughout the research process I will not look for empirical evidence to fill categories, to prove the existence of structures already conceived, but will pay particular attention when these forms of classification are made to matter. The research provided here “presents a snapshot of network connectivity, which is part of a continually evolving process” (Ruming, 2009, p. 458). It does not proffer a complete and easily grasped 'story' of the city as “there is no final coherence, no system of coherent networks” that make up the urban (Ruming, 2009, p. 458). Thus I have provided a mapping that seeks to locate cycling at multiple levels in urban policy, social networks, and affective experiences in U.S. cities currently. I provide a broad context in the first chapter, but importantly the following chapters are designed to build upon this history in order to understand whether the ways in which

cycling is integrated into the city today extends or disrupts previous formations. Whilst I construct a radical contextualization of the history of cycling and the city, each chapter thereafter goes further as it is informed throughout by a conception of the urban as “a plural, multifaceted and complex terrain, a different kind of spatiality” (Cupples and Ridley, 2008, p. 259). But also that this complex urban setting is also, now more than ever, formed in negotiation with cycling infrastructures, policies, programs, and practices.

Positioning this project within the cycling literature

Located within a growing literature, I have drawn upon and sought to extend a broad range of scholarship centered on cycling in its myriad practices. I have built on several areas of cycling scholarship empirically, methodologically, and theoretically through my multi-level analysis. To understand where my project has added to the field it is important to first recognize the cycling research landscape currently. Certainly there are several ways in which research on cycling can be categorized and stratified, and there will be research that will be blind spots in this mapping. However, what I am developing here is an introduction into cycling research with particular relevance to situating this project.

The first point of division that can be made is between research that focuses on cycling as either a physical activity for recreation, or as a socially significant mobility practice. This is an important division to differentiate between scholarship that analyzes human physiological performance as people cycle for sport, and research that explores cycling as a physical activity with significant socio-cultural

meaning. Scholarship that falls on the latter half of this bifurcation includes the study of both cycling for recreation and transportation, or the combination of both as highlighted by work with cycle messengers, where cycling for work as transportation becomes imploded into a form of recreational play (Fincham, 2006, 2008; Kidder, 2006a, 2006b, 2009). However, currently a large amount of this scholarship increasingly focuses on cycling as a mode of transportation. This particular orientation towards studying cycling as transport may be due to the large sector of work on cycling that originates from geography, urban studies, as well as urban planning and design research. Cycling research from these areas is broad in its methods, theories, and empirical sites, but all are related to the processes of how cycling is related to particular spaces, forms of governance, and social practices as they constantly changing (e.g. Bassett et al, 2008; Evenson et al, 2011; Gotschi, 2011; Heesch and Han, 2007; Love et al, 2012; Mosquera et al, 2012; Pesses, 2010; Pucher, Dill, and Handy, 2010; Sallis et al, 2013). Whilst some scholars still seek to analyze cycling as an objective and quantitatively measurable practice, others have embraced innovative conceptions of cycling in a belief “that there are vital and productive powers associated not only with cycling but with the physical infrastructure of bike lanes themselves” (Vreugdenhil and Williams, 2013, p. 289)

For some researchers cycling as active transportation becomes a focus because of a belief in its particular positive qualities in addressing issues of health, improving urban design, boosting urban economies, and underpinning environmental sustainability. As transport, cycling does not only add another activity to the possible leisure activities available, as is the case with its role in recreational practices, but

functions to replace what is repeatedly positioned in the literature as sedentary, expensive, polluting, and congesting car journey's (Dill and Carr, 2003; Pesses, 2010; Love et al, 2012; Maibach, Steg and Anable, 2009). Goodman et al (2013), discuss that “transport trips may confer greater environmental benefits than recreational trips, because active travel seems to substitute for motor vehicle use” (p. 1). As such the focus on cycling as transportation more readily places the bicycle at the heart of a public health and environmentalist discussion. Indeed for many scholars the starting assumptions are that “Benefits of bicycling—such as the gain in physical activity and emission-free transportation—are generally understood, at least in broad, qualitative terms, and [are] undisputed (Gotschi, 2011, p. s49). These benefits are discussed as direct positive outcomes for those who cycle, such as improved health or economic savings. However, these assumed benefits are always at the same time positioned as having numerous positive health, environmental, and economic externalities:

The benefits of bicycle commuting also extends to the wider community. Compared to motorized forms of transit, commuting by bicycle produces modest reductions in air pollution emissions associated with negative public health outcomes and also reduces greenhouse gas emissions implicated in anthropogenic climate change... There are also less tangible, well-studied benefits to cities and communities with larger populations of bicycle commuters, including social and group cohesion, perception of neighborhood safety, and improved urban ‘livability’ standards that are increasingly

recognized as important for planning long term urban sustainability (Love et al, 2012, p. 452).

The positivity that surrounds cycling has meant there is a comparative lack of critical discussion of the role of cycling in contemporary U.S. society. The orientation of research has primarily focused on how to expand cycling participation, especially as a growing transportation mode share. This has meant that whilst this research provides some important insights, the assumed positive impacts of cycling at the base of “Such sustainable transport agendas promoted by cycling [researchers,] advocates and governments alike can... lapse into overly simplistic binaries with cyclists regularly portrayed as being ‘good’ and car drivers being ‘bad’ for the environment (and health and sustainability).” (Vreugdenhil and Williams, 2013, p. 284).

In an attempt to resist this reductive framework, there has also been cycling research that has sought to embrace the complex, multiple, as well as sometimes-contradictory experiences and effects of cycling. These scholars have developed a focus on the socio-cultural impacts of cycling through exploring its relation to a myriad of other human and non-human actors (Aldred, 2013a, 2013b; Aldred and Jungnickel, 2013; Cupples and Ridley, 2008; Green et al, 2012; Jensen, 2013; Jones, 2005, 2012; Larsen, 2013; Stehlin, 2013; van Duppen and Spiering, 2013; Vreugdenhil and Williams, 2013). This scholarship is varied and wide reaching, from interest in events like Critical Mass (Furness, 2010), bicycle touring (Pesses, 2010), discussion of the periodized development of cycling policy in the UK (Aldred, 2012), or an exploration of the sensorial experience of cycling (Jones, 2012), as well as the

affective dimensions to cycling within particular infrastructures (Vreugdenhil and Williams, 2013).

It is a scholarship that has drawn both on quantitative (e.g. Bassett et al, 2008; Bauman, Merom, and Rissel, 2012; Garrard, Rose, and Lo, 2008; Gotschi, 2011; Panter, Desousa, and Ogilvie, 2013) and qualitative methods (e.g. Aldred, 2012, 2013a, 2013b; Fincham, 2006; Furness, 2010; Kidder, 2009a, 2009b; Pesses, 2010). Participant observation, interviewing, policy and discourse analysis, survey data, biometric measures, as well as recording use patterns through GPS mapping and participation counts have all been carried out to inform this research tradition. Yet, despite this broad range of approaches and techniques represented by these scholars and their work, there is still a common critical, thickly descriptive, and theoretically informed exploration of cycling that distinguishes this body of work. At times this research falls into the same potentially reductive assumed positive stance at the outset of research, but a more critical research agenda and an embrace of the complexity of cycling is central. Thus, it is within this strand of research where I place my analysis of cycling in this project.

I have added to critical inquiries into cycling as I have sought to build on the work of a multitude of important scholars in the field (Aldred, 2010, 2012, 2013a, 2013b; Aldred and Jungnickel, 2013; Cupples and Ridley, 2008; Furness, 2007, 2010; Fincham, 2006, 2008; Gibson, 2013; Jensen, 2013; Jones, 2005, 2012; Jungnickel and Aldred, 2013; Kidder, 2006a, 2006b, 2009; Larsen, 2013; Lugo, 2013; McCarthy, 2011). However, I do not wish to be wholly negative of cycling, as I also see the potential for it to be a site for change in its departure from what characterizes our

dominant modes of mobility, and its ability to facilitate unexpected interactions that dislodge any attempt to enforce overarching neoliberal forms of urban governance. As such its potential is embedded in its complexly assembled and affectively intense practice in U.S. cities. I do approach cycling with critical skepticism, to be constantly wary of an over romanticizing of cycling's resistive or disruptive potential to challenge and solve urban issues. Yet it is fundamental to this project to discuss the complexities of cycling and its effects, both its problematic role in extending the problematic logics of contemporary urban governance and its ability to simultaneously challenge these dominant relations of power. I am not involved in a project to disprove the quantitative data on the health impacts of cycling or the pollution reduction resultant of those involved in active commuting. However, I will look to complicate these discussions, and the realities of these claims. In other words I am interested in how such arguments have been used to shape the formation of contemporary U.S. cities and the dominant conceptions of cycling as an urban physical culture. The zeal of those that promote cycling "often contains fundamentalising and disciplinary dimensions" (Cupples, 2011, p. 228). Thus this is a project to locate cycling, both in its potential to positively serve in the re-formation of our cities, but also as it is negatively drawn into profit oriented logics, marginalizing structures, and disciplinary technologies.

Chapter 1: History and Context: Discussing the broad policy trends and popular discussions that surround cycling.

Introduction

This chapter provides a contextualization of cycling generated through a review of the major themes and trends in policy and discourse over the last four decades. I have focused on mapping significant trends in the contextual framings of cycling in the U.S. from around the 1970's "bicycle boom" (Pucher, Komanoff, and Schimek, 1999, p. 6) through to the present day. Thus in analyzing dominant discourses that have occurred between federal policy, advocacy, and popular press, I have been able to trace the changes and similarities of how cycling is positioned over time, especially within urban settings. This is a historical project in which I map some of the broad historical framings of cycling in the U.S., so as to inform my study of cycling today. It is a discussion of the various ways in which we have reached the broad assumption that cycling is a wholly positive "way to improve individual health as well as reduce air pollution, carbon emissions, congestion, noise, traffic dangers, and other harmful impacts of car use" (Pucher, Dill, and Handy, 2009, p. s106). It is not a means to putting forward a complete or linear rendering of the location of cycling within a U.S. context over the last four decades, yet it provides broad analysis of how cycling has shaped American cities over this time. In turn this will provide a context against which my analyses within each city can be compared and contrasted. These policies and discursive frameworks are important as they represent a condensation of "individuals, groups, practices, events, ideas, power, struggles, and compromises" (Winton, 2013, p. 159) regarding cycling since the 1970's. However,

they also play a role, intended and unintended as they become taken up and pushed back against by various actors in the present formation of the city.

Cycling in the U.S. saw a boom in the 1970's, as a form of recreation and transportation, in response to and alongside significant changes in environmentalism, events impacting oil dependence, as well as changes in conceptions of health and the approaches to planning urban communities (Pucher, Komanoff, and Schimek, 1999). From this point there was a re-iteration, or a new beginning in considering cycling within existing policy, or in the development of new policies at all levels. Following the initial growth in considering cycling in policy, in particular as a mode of urban transportation, it started to receive specific consideration in earnest within policy at the federal level in the late 80's and into the 90's. This was specifically expressed with the integration of cycling into federal transportation policy as a result of the creation of Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 and the Transportation Efficiency act for the 21st century (TEA21) in 1998, amidst the impetus of the National Walking and Bicycling Study (NWBS) presented to congress in 1994. Under the actions of US Senator Moynihan from New York, there was a change from a purely highways focus in transportation policy at the federal level towards an intermodal approach. This meant that more consideration was given to the integration of car specific infrastructure with other forms of transportation, and its attendant spatial and technical requirements. This specific policy consideration, from the federal level down, in the 1990's has since been expanded and refined throughout more and more municipal centers around the nation.

Today cycling has become so embedded and further codified that it has now become a common sense element of urban planning, design, and governance for many policy makers. Currently for many it is understood that cycling “promotes health, fights obesity, reduces traffic and shrinks your carbon footprint” (Gibson, 2013, p.2). Its benefits seem to have such broad positive effects it is understood that “If you are a big-city mayor, and you want to impress young professionals with your smart-growth bona fides, what is not to like about bikes?” (Gibson, 2013, p.2). Indeed as one advocate stated in relation to promoting cycling “safety, economic development, quality of life... those are the things that really motivate policy makers” and have in turn become central themes in promoting cycling, and through the bicycle have come to be ways in which to promote 'livable' communities (M. Litman, personal communication, July 16 2013). These sentiments have increasingly become entrenched in policy, programs, and the built environments of our cities. This pro-cycling message that has increasingly become entrenched within policy has also been reverberated throughout various traditional and new media platforms, especially as a strong and visible advocacy community supports it.

Recently the Alliance for Biking and walking, a national advocacy group disseminated emails stating that “Passionate advocates improve our streets with facilities like protected bike lanes, wider sidewalks, convenient crosswalks, and great connecting trails” (Alliance for Biking and walking, personal correspondence, December 12 2013). For these groups and many others cycling is a positive element of developing safer and more accessible streets. Despite this positivity cycling has also become a central point within growing concerns about processes of gentrification

within many cities, where the term describes more than “a quaint, localised phenomenon” and instead refers “to a systematic private–public urban strategy at the forefront of a globalised neo-liberal urbanism” (DeVerteuil, 2011, p. 1563) servicing entrepreneurial capital whilst retrenching key services that support low and working class populations. The impacts cycling has had, and the ways in which it is understood within the U.S. by a range of people is specific and varied. Cycling is a complex physical cultural practice, one that has had a long and ever changing history in the US. This chapter seeks to give a broad grounding for where cycling stands presently within policy, popular, and academic discourse. Cycling is too broad in its effects to be comprehensively, or at least conclusively summarized here. However, this chapter will provide a good base through which to contextualize the following chapters, bringing together various key discussions that inform what cycling is at this present moment within the US.

Theory-Method: from radical contextualism to Critical Discourse Analysis

This mapping of cycling’s various positioning in the U.S. has been informed by the concept of radical contextualism that is fundamental to a Hallian inspired Physical Cultural Studies (Andrews, 2008; Silk and Andrews, 2011). In this sense I am continuing the PCS sensibility to be compelled “to exhibit the critical contextualism of a particular understanding of cultural studies”, whilst specifying into the study of one of a “diverse array of cultural physicalities” (Silk and Andrews, 2011, p. 8). I have used broad headings that have been drawn out from an analysis of multiple texts, interviews, and observations. Within each of these headings more

specific analyses have helped explore the ways in which cycling has related to concepts of health, safety, resource consumption, developing the contemporary model citizen, etc. This has not been an attempt to garner the 'truth' about cycling's impacts on U.S. cities over this period of resurgence since the 1970's, but does provided some insight into the codification and normalization of cycling in this time. As Grossberg (2010) suggests “if people make history but in conditions not of their own making, cultural studies explores the ways this process is enacted with and through cultural practices, and the place of these practices within specific historical formations” (p. 8). Thus this chapter locates cycling within this historical context, from 1970 through to 2013, so as to inform the study of “particular structures and forces that organize everyday lives” (Grossberg, 2010, p. 8) in the chapters that focus on each city in particular. In mapping the context of cycling in the U.S. through the analysis of major texts, it provides a point from which to start to conceptualize cycling affectively, socially, and in policy currently. As each city specific chapter discusses cycling as is, this first chapter allows comparison to understand how elements of cycling in the U.S. have changed, or stayed the same (or very similar).

Articulation and radical contextualism: developing a theoretical framework

The broad themes of cycling's location within the U.S. over the last four decades provides an essential context through which to understand the present. Cycling is discursively, economically, and politically located not simply as a function of determining structures, or natural associations. Instead the role cycling has played within U.S. society is the outcome of a process of articulation, the bringing together

of constituent elements that do not have a necessary correspondence or non-correspondence (Laclau, 1977). Cycling as it is experienced today is the outcome of “a constellation of mutually constitutive relationships that are not reducible to one or the other” but rather are understood as a system of “novel interactions between market-driven mechanisms and situated practices in space-time interrelationships” (Ong, 2006, p. 9). For this project to facilitate an understanding of cycling as a practice bound up with meaning, which impacts upon the formation of the social, it must be radically contextual. As Silk and Andrews (2011) discuss “physical cultural forms (e.g., practices, discourses, and subjectivities) can only be understood by the way in which they are articulated into a particular set of complex social, economic, political, and technological relationships that comprise the social context” (p. 9). Thus to understand the particular information I gathered on cycling in the present, it is necessary to understand the context which these experiences of cycling replicate, or from which they deviate. As Grossberg (2010) suggests “By looking at how the contemporary world has been made to be what it is, it attempts to make visible the ways in which it can [and has] become something else” (p. 1). Studying how cycling has been made to matter in the U.S. provides the grounding upon which to understand what cycling is now within Boston, Baltimore, and Washington DC.

This imperative to be radically contextual is a fundamental aspect of my practice of a Physical Cultural Studies. It is only through understanding expressions of the physical in relation to the wider socio-cultural terrain that we can understand what the physical is. Through studying cycling the city can be further understood, as cycling impacts the formation of the city if only in part. Yet in performing a

contextual study of cycling, in relation to the urban setting, we can also come to understand what cycling is more fully. The articulations that connect to cycling “have engendered a range of contingent and ambiguous outcomes that cannot be predicted beforehand” (Ong, 2006, p. 5). However, it is through the study of these articulations that we can come to understand the outcomes cycling has influenced, as well as how cycling has been influenced by these outcomes. The relationships cycling has with other practices and events “can be changed, and are constantly changing” (Grossberg, 2010, p. 20), so that any analysis will be partial, momentary, and incomplete. Yet in understanding cycling fully in its relations to the urban “no element can isolated from its relations” that “surround, interpenetrate, and shape it, and make it what it is” (Grossberg, 2010, p. 20).

As a theoretical approach, radical contextualism through articulation comes to underpin my PCS, where the physical is understood as “a complex multilayered site” that in its relation to other elements “creates a bewilderingly complex, and dynamic, coherent, social totality” (Silk and Andrews, 2011, p. 10). This theoretical approach to studying the physical draws on a lineage of scholarship from Williams, through Hall, Grossberg, and many others. Indeed Williams (1961) suggestion that practices and events are to be understood as “an inseparable part of a complex whole” (p. 47) can be seen to be in direct connection with my contextual study of cycling in the U.S. presently and historically. Williams (1977) suggests that the social is a product of a complex constellation of determinants, a sentiment echoed by Hall (1996) in recognizing that outcomes are resultant of the interaction of a “particular constellation of social forces” (p. 43). Thus the sentiment embedded within what

Williams and Hall suggest, comes to underpin a radically contextual study. The contextual study of an event or practice is to study the ever-changing complex constellation of articulations that determines its location within the broader conjuncture.

There is a lineage from Williams, through Hall, Grossberg, Andrews, and then to myself in practicing a radically contextual study of the physical. This chapter is in turn an expression of this approach, mapping and analyzing the articulations that have been made to cycling in the U.S., and particularly urban cycling practices. Ultimately I have developed an analysis of discourses that are important because “they are crucial to the construction of the specific contexts and forms of human life” that are related to cycling, providing the context against which cycling today can be understood (Grossberg, 2010, p. 23). Whilst always recognizing cycling as only one element to the formation of the city, and my necessarily partial investigation into cycling and its effects, this approach to studying cycling in context, as the outcome of a complex constellation of articulations is fundamental. I utilize a broad range of theories throughout this project, but the complex and networked understanding of our social reality is common across my research. To understand cultural practices and events through mapping their complex and emergent relationality, is an approach that infuses every aspect of my practice.

Analyzing cycling's articulations through Critical Discourse Analysis

In following this imperative to radically contextualize my study of cycling, through the mapping of the articulations between cycling and the broader cultural

terrain I have drawn on Critical Discourse Analysis. The term becomes an umbrella that encapsulates a broad range of analytical approaches where “On the whole, the theoretical framework of CDA seems eclectic and unsystematic” (Weiss and Wodak, 2003, p. 6). Yet at the core many agree that CDA is concerned with “the complex interrelations between discourse and society” and that they “cannot be analysed adequately unless linguistic and sociological approaches are combined” (Weiss and Wodak, 2003, p. 7). Thus CDA is an undefined, but pointed means through which to analyze texts where in this project they are understood to be the formalized expressions of many of the articulations that connect cycling with political, economic, social, and affective processes. It allows a study of the documents that are the traces left behind from previous conjunctures, to inform a historical study of the present. Policy documents and popular media, both traditional and new formats, come about through particular and sometimes expected points of interaction. However, they also play roles that are sometimes un-intended and un-expected. In this sense they are important aspects of the broader urban context that is the focus space in which cycling is being analyzed here. This chapter is a mapping of the articulations around cycling, where “Articulation names both the basic processes of the production reality... and the analytic practice of cultural studies” (Grossberg, 2010, p. 21), and where CDA represents the particular mobilization of this practice in method.

My critical analysis of discourse has entailed mapping general trends within multiple sources of cycling media and policy documents, as well as some close readings of specific texts. This has taken on a more specific and focused analytical approach since the inception of this project, however as an avid cyclist these materials

have been part of my life for years. Due to this it is difficult to provide definitive points of engagement with many of these discourses. Yet it is safe to say that I have been drawing from at least a years worth of:

- **Newspaper articles** – Many from the *New York Times*, *The guardian*, and *The Observer*
- **Magazine articles** – Both cycling specific such as *Peloton*, but also including more generally themed magazines such as *Outside*
- **Twitter posts** – Primarily this focused on cycling journalists and cycling advocacy organizations
- **Instagram posts** – From a multitude of people more or less tangentially related to the cycling community or its many related industries
- **Tumblr entries** – Again mostly those developed by the cycling community and advocacy groups
- **Blog entries** – I drew information from a number of blogs, some related directly to cycling, and the community, others more focused on the urban.
- **Website pages** – A number of websites that represent a multitude of groups, companies, semi-governmental bodies, and individuals. These were both related to cycling and urbanism more broadly
- **Television programs** – These were both programming in the UK and the US, the primary sites of my experience with cycling, its policies and community
- **Podcasts** – Specifically there were several podcasts that focus on the city, urban design, and urban planning. An example would be the *99% invisible* podcast

- **Online videos (especially TED talks)** – Many videos, and TED talks in particular, have discussed many aspects of cycling and urban cycling. More recently there have been many looking at the impacts of bikeshare programs.
- **City bike master plans** – Both those for the cities I focused on and the many others for cities not included here. Those included, but were not limited to: Dallas, San Diego, Chicago
- **Municipal, State and federal policy documents** – A number of Acts put in place at the federal level, state laws and advisory documents, and municipal policy
- **Advocacy publications** – In particular the benchmarking report from the Alliance for Biking and Walking, which is a national advocacy organization
- **Advocacy emailing lists** – I am on the emails lists for several groups including that of the Alliance of Biking and Walking
- **Cycling centered scholarship** – All that listed in the introduction and more that relates directly or more obscurely to cycling, and in particular urban cycling

Alongside the various recreation, transport, clean air, clean water, and municipal development policy documents produced by federal, state, and municipal governments this chapter focuses in on discourse as it is also produced in non-policy texts. I have drawn out general discursive trends that are generated across and between advocacy, academic, and popular press documents. Potentially the most complicated source of these documents was those produced by the cycling community, in its multiple iterations. As a member of several elements of this community I have engaged with discursive trends over a decade at least. Also as the

community has developed and morphed my involvement with it, and its discursive frameworks have grown more nuanced and fragmented. Thus each document has been read to draw general themes and trends that have arisen through analyzing historical documents up until the present, but also informs the changing constantly shifting articulations that are made to cycling.

In mapping these general trends I have also drawn specific quotes that have particular resonance, or which become recurring expressions of these broader discursive framings. To add to this analysis of written texts I have also interrogated the often intimately related use of various images and info-graphics that have been produced concerning cycling. Again these do include written text, but most also use symbols and images to more effectively convey, or accentuate their message. These particular expressions are also brought into relation to other texts to start to draw out general themes, to inform theoretical frameworks, and inform how contexts are constructed. As Weiss and Wodak (2003) discuss “symbolic practices do not take place within social systems. Instead, they reproduce the latter simply by taking place” (p. 10). Thus the analysis of these texts is not to understand how they function within some a priori social setting, but to analyze them as partially productive of the social context.

Ultimately this chapter has been produced through the critical analysis of a broad set of policy documents, cycling scholarship, advocacy, and media texts. Historical, as well as contemporary texts and images have been read over the last year. This diligent reading process has informed how these texts have been productive of broad themes, and specific instances that have come to frame cycling in

particular ways. To develop a broad and deep critical analysis of the role of cycling within urban settings CDA is not enough, however it plays a very important role in crafting this project. It is an important first step in how understanding how cycling's articulations “have determining effects” whilst rejecting that “such relations and effects have to be, necessarily, what they are” (Grossberg, 2010, p. 22). The eliciting of broad themes and trends, as well as the close readings of relevant documents has provided a general mapping of what cycling has been to this point, and serves to introduce the major threads that run through cycling's discursive framings.

Health

The links between cycling and its role in improving health has been part of a policy discussion since the first cycling specific policies were being developed in the U.S. at the Federal, State and municipal levels. Indeed the re-growth of cycling for recreation and active transport in the U.S. starting in the 1970's reflected the “approximate beginnings of a period in which there has been a proliferation of academic and professional writings and associated practices focusing on those aspects of 'lifestyle' conducive to ill [and good] health” (Petersen and Lupton, 1996, p. 15). However, what is also clear is that this understanding of the role cycling can play in improving health has gained momentum over the time since this inception. As Gotschi (2011) discusses “Although traditionally debated within the framework of transportation policies, more recently the idea of considering investments in walking and bicycling as a measure of disease prevention [in particular chronic lifestyle related disease] has gained traction” (p. s49). This association that is being made,

then, builds upon “the continued emergence and consolidation of health as one of the guiding mantras of both governments and individuals, paradoxically and simultaneously both a collective and individual responsibility and desire” (Cheek, 2008, p. 974). Additionally the role cycling can play in peoples health has been part of the marketing of bicycles in various ways, as well as being a part of promoting the city as a livable community. Bicycling advocates in particular have grasped health as one of the three central pillars of cycling promotion, alongside various other supporting framings of cycling's positive impacts. Essentially there is a belief that “more bicycling could yield health and environmental benefits” (Sallis et al, 2013, p. 1). The Alliance for Bicycling and Walking (2010) believes the effects of cycling on health to be of such great impact that they suggest:

The partnerships addressed in this report [their benchmarking report] among bicycle and pedestrian groups, health organizations, and transportation are necessary to address the infrastructure problems in our communities to improve public health, in the same way that municipal water systems and improved housing infrastructure helped remove infectious disease risks in the previous century (p. 7).

In this quote the lack of provision of infrastructure that supports cycling or walking as transportation, or recreation, is seen as similar to the lack of provision of clean water, sewage systems and safe housing at the end of the 19th and at the beginning of the 20th century. This comparison elicits an approach to addressing poor

health in a way that appears to deviate slightly from a common discourse that calls upon individuals “to develop an active alliance with experts to develop a programme of self care” (Peterson et al, 2011, p. 393), and shifts the need for action outside of the individual. Therefore it offers an approach to health that is cognizant of the effects that the built environment can have is important. Yet the individualism at the core of a healthist approach is not lost, infrastructural developments, such as bicycle lanes, still require people to get out and use them to be successful in addressing poor health. The quote certainly represents a call for greater support of the individual, thus a more distributed sense of responsibility for health, but people must still make the decision to get on their bike and use it. In addition, the similarities that are alluded to between water systems and recreation, or active transportation infrastructure, can still overly simplify the complex factors at play in the development of chronic health problems. These commonalities, presented as 'truths', “construct public health 'problems” (Petersen and Lupton, 1996, p. 8) that overly simplify, and therefore obfuscate the differences and relative complexities that may exist in the outcomes of our health. By suggesting these similarities, the comparatively straight forward correlations and forms of translation between bacterial contamination of water systems and the spread of acute diseases such as cholera or typhoid, is seen as similar to the relations between lifestyle and chronic diseases such as heart disease. It serves to overly simplify the complex interplay of a “combination of place-based physical, economic and social characteristics and the public policies and institutions that shape them” (Corburn, 2009, p. 3), which impact upon health. It is not simple risk, response correlation, but our health is refracted through a plethora of social contexts of class,

race, gender, ethnicity, sexual orientation, and disability at the very least. This is not to deny that the specificities of the social structures and the material factors of turn-of-the-century American life were not complex in their effects, but the causal relationships of acute disease epidemics such as typhoid are more evident and traceable than in the relation between obesity and activity rates, or the even more complex relation to chronic diseases for which obesity is a comorbitor.

The discussion of cycling's health benefits has been present in both cycling as recreation and cycling as transportation. Within the former cycling becomes another activity in the cadre of physical activities that can be engaged with in order to address, or prevent a multitude of health issues. In the discussion of cycling as transportation, cycling becomes a means through which to replace sedentary forms of moving around the city with a form of 'active transportation':

Bicycling is a great way for urban residents with busy lives to combine healthy exercise with daily travel (Baltimore City DOT, 2006, p. 1).

Where cycling is promoted as a form of active transportation, it is a discourse that ties into discussions of developing efficient modes of maintaining health (Titze et al, 2010). For those that cycle health can be achieved as part of the productive daily routine, rather than being an action that is added on to, or interferes with the workday. Indeed Bassett et al (2008) suggest that:

Some researchers have suggested that the physical activity generated by active transportation is helpful in weight control.^{5,6} Walking and bicycle commuting usually fall into the moderate-intensity range, and if performed regularly, can result in substantial amounts of energy expenditure.⁷ In addition, the use of public transit (trains, subways, and buses) usually involves walking or cycling to and from transit stops and, hence, would also be expected to promote weight control, as well as a host of other physical and mental health benefits (p. 796).

It allows cyclists to be attendant to the imperative for health as part of their daily productive and consumptive practices, an imperative that is “at once the duty of each and the objective of all” (Foucault’s, 1984, p. 277). Cyclists are therefore efficiently and visibly meeting this duty, maintaining their health to limit their reliance on the support of others, or the state, whilst also maintaining their health to be a productive worker. Cycling provides a mode to practice a “consumption of new and refracted forms of health “care” [as] both conspicuous and voracious” (Cheek, 2008, p. 976). Indeed many companies are encouraged to support their workers ability to cycle to and from work, so as to maintain a healthy work force. There is much to be complemented where companies are interested in the care of their workers and their health, however where these schemes are supported primarily to maintain a productive workforce in seeking increased profits this can become problematic. Workers should not be pushed towards means of efficiently fitting their duty to maintain their health into part of the productive workday, but should instead be given

the free time to do as they wish, which may include recreational activities. Any choice to cycle as a mode of transportation should be made by the individual, not through the imposed duty of some external disciplinary normalization encouraged by the discursive productions of policy-makers, cycling advocates, health 'professionals', or private capital caught up in the “deployment of expert knowledge for shaping the thoughts and actions of subjects in order to make them more useful and 'governable'” (Petersen and Lupton, 1996, p. 15).

The positioning of cycling relates to wider patterns in the discourses of health and physical activity, although its ability to offer a form of efficient active transportation does propose some particularities to the discussion around cycling. As active transportation cycling is a means through which to integrate health-oriented activity into the productive workday, in a way that few other forms of physical activity can, whilst accentuating the visibility of one's ability to meet this imperative. Cycling for transportation allows individuals to efficiently address the risks to health, which helping us “present our bodies to ourselves and to others” as healthy (Petersen and Lupton, 1996, p. 23). This celebration of the bicycle becomes integrated into, and in many instances considered at the pinnacle of a broad set of 'active transportation' modes, cast in contradiction to those sedentary transport modes exemplified by the car. In discussing their research Basset et al (2008) suggest that “The main finding of this study is that countries in Europe, North America, and Australia where active travel is most common have the lowest obesity rates, whereas those countries with the highest rates of car use for travel have the highest obesity rates” (p. 798). Obesity, used as a synecdoche condensing the broad range of risks to health that inactivity

poses, becomes intimately tied into, and seemingly addressable through the simple shift to more active forms of transportation placed in particular comparison to cars. This comparison, seemingly detached from the complex array of influences on personal health, is given numerical validity where studies have “concluded that each hour spent driving was associated with a 6% increase in the likelihood of being obese and that each additional kilometer walked per day was associated with a 4.8% reduction in the likelihood of obesity” (Bassett et al, 2008, p. 807). The importance invested through numerical proof furthers advocacy for cycling, and comes to underpin a common assumption of cycling's health benefits.

The health related framing to cycling has been continually present in policy, and popular discussion around the bicycle. However, the form that this discussion has taken has been flexible and changing over the last forty years at least. This health-cycling discourse has had to do less to convince its recipients of its virtues, as knowledges about healthy activities have become more common sense. As Lee and MacDonald (2010) suggests “Public health messages around physical activity and fitness flood most contemporary forms of popular media and are indeed difficult to circumvent” (p. 203), and cycling with increasing ease can tap into these pervasive discourses. Additionally with the rise of the 'obesity epidemic' the discussion of health has become increasingly narrowed. Certainly the cardiovascular benefits of cycling were not ignored in early discussions of cycling's health benefits, yet at this time benefits to mental health and other elements of physical health were still fully part of the discussion. Comparatively as we have moved to a dominant positioning of obesity as the major concern, or threat to health, it has become a short hand for the

health benefits of cycling. Through this shorthand however there has been a broad loss of the other more holistic benefits of cycling to our health. In these two quotes, split by forty years, we can see the clear differences between the health discussions:

Bicycling can also be a relaxing, open-air alternative to the frustration of rush hour traffic and parking, helping to reduce ulcers and high blood pressure as well (Central Transportation Planning Staff, 1976, p. 6).

And...

Bicycle exercise can help reduce heart disease, diabetes, obesity and other chronic illnesses, which are not uncommon in Baltimore (Baltimore City DOT, 2006, p. 3).

These quotes are indicative of not radically different discussions, yet the differences that show through are related to shifts in the commonsense discourses around health between the two eras. In the first quote from the 1970's the benefits of cycling addresses a broad conception of health, a discussion that included the impacts on obesity and heart disease, but also a consideration of stress in its mental and physical expressions. Cycling is seen as a means through which to relieve stress, and the related issues of ulcers and high blood pressure. In comparison for the second quote from the Baltimore Bike master plan, issued in 2006, obesity and related chronic diseases is the overriding focus. I do not believe that cyclists have now

ignored the stress relieving possibilities of cycling. During my interviews several respondents discussed cycling as a low stress and fun activity. Jack a bicycle advocate in Baltimore simply suggested that “Cycling equals fun” (J. Woodly, personal communication, June 28 2013). However, within a policy, advocacy, or marketing framing the relation of cycling's benefits to the prevention of chronic 'lifestyle' diseases is dominant, alongside discussions of cycling's impacts on the economy and environment (e.g. Basset et al, 2008; Cervero et al, 2009; Panter et al, 2013). The growing fear of an 'obesity epidemic', whether real or not, provides the context upon which a narrowed discourse of health impacts can become enough to build an effective promotion of cycling. As Rich (2011) suggests “it is routinely declared that the health of western society is facing imminent decline unless measures are taken by individuals to eat less, lose weight and exercise more” (p. 5), and cycling is repeatedly positioned to service this requirement for health. The individualization of health, and its narrowed relation to obesity, means that “the healthism discourse and obesity discourse are interrelated, such that the individualising responsibility for one’s own health (and body shape/size) characterises the overweight or obese as lazy, self indulgent and greedy” (Lee and MacDonald, 2010, p. 204). An issue to which cycling can be a solution. Thus this public health benefit cycling offers, presented alongside a range of other proposed positive outcomes to increasing cycling for recreation and transport, becomes simplified, condensed and technocratic in its expression.

The discourse of health in relation to cycling is quite clearly fundamental to its promotion and positioning within the formation of the contemporary U.S. city, the

(in)active city. Cities have been considered spaces directly connected to the health of individuals and populations at large. Sui (2003) discusses that “There has been a long history of studying the human body and the city from a public health perspective (Power and Sheard, 2000) and it is well known among medical geographers that place and health are closely linked in many different ways” (p. 77). This direct relation between the urban setting and health has become clarified within policy and urban governance in various modes throughout history (Corburn, 2009). However, with the advent of the healthy cities initiative developed by the World Health Organization (WHO), the formalization of methods to improve the healthy nature of cities, including their planning to support physical activity, became increasingly globally interconnected. The health of a city has become a measured index, data has proliferated on health in the city. Therefore increasingly the promotion of a city in relation to a national or global ranking, and therefore competition, has been in relation to its status as a healthy city (Sui, 2003). Cycling when framed as a means to promote health, as recreation or active transportation, then becomes desirable in making a city healthier, or at least promoting its status as healthy, in this new ranking system. Cycling's ability to impact health through exercise, as both recreation and transportation, has meant it has become central for many municipal plans to improve health in urban communities, and cement its designation as a 'healthy' or 'livable' city.

One of the biggest disconnects that may exist in the potential impacts of cycling for health, is found when looking at which populations or spaces would benefit most from cycling. Indeed as can be seen for policy makers, private interests, and advocates alike cycling is framed as the preferable urban mobility option,

especially in comparison to the car. As Mark Litman, a cycling advocate suggested, “cycling became the answer to all the worlds problems in my humble opinion” (M. Litman, personal communication, July 13 2013). However, development patterns for cycling have followed a center out pattern in most cities, especially with the expansion of bike share schemes that have focused on spectacularized downtown zones as they service tourist users as well. Indeed infrastructural provision for cycling has generally followed income patterns in the city, being mostly implemented in higher income neighborhoods. This pattern mimics a broader pattern of urban development to attract “talent, investment, and tourists to a city” as part of cities creation of “creative agendas” to provide the settings through which to lure upwardly mobile residents, tourists, and private capital (Leslie and Hunt, 2013, p. 1171).

Highlighting this pattern to infrastructural expansion in cities is not to suggest a wholly cynical and dictatorial plot by municipal government to ignore investment in low-income neighborhoods. Certainly there is a complex confluence of human and non-human actors that shape the ways in which infrastructure is implemented. This overlap becomes accentuated in the development of cycle hire schemes as various private interests mesh with public entities. However, the realities of infrastructural expansion within dominant neoliberal logics and “creative agendas” (Leslie and Hunt, 2013, p. 1171) has led to a patchwork of development for many cities, that has meant a focus on neighborhoods that are already undergoing development, or have been able to organize some sense of coordinated desire for bike specific street design. This then stands in stark contrast to research that suggests “targeting traffic calming, bicycle facilities, and other interventions to the least-safe neighborhoods could be an effective

and efficient approach to increase bicycling and improve health among subgroups at generally higher risk for chronic diseases” (Sallis et al, 2013, p. 5). In turn this makes municipalities promotion of cycling for health, especially as a priority for its development, seem disconnected with the actual expansion of bike networks, policies, and programs.

When cities are rarely taking the approaches to development and expansion that could yield the biggest health impacts, claiming a commitment to cycling as a commitment to solving urban issues is misguided at best, if not deceitful at times. Again, this seeming lack of alignment between the effective means of implementation of cycling infrastructure for health benefits, and city network plans is not necessarily the effect of a purposefully duplicitous plan. Yet the seeming incongruence’s between rhetoric and action, brought about by a multitude of factors, including a general shift to an underlying neoliberal logic to urban governance (Leslie and Hunt, 2013), means that the actual modes of infrastructural expansion seem to be in some degree of contrast to the discursive framing of cities as healthy or livable. Certainly the city workers I interviewed did not suggest that there has been a master plan of (dis)investment for their cities. Many echoed the sentiments of Jim Fredricks when he stated that “We are just interested in creating the environment to get people biking who aren't biking today” (J. Fredricks, personal communication, July 13 2013). Yet, instead, the effects of policy, budget, community desire, and the environment, at the very least, have all impacted upon this process in a way that has made it disconnected from the vision that is laid out in bike master plans for all three cities I have looked at. Indeed cycling may have impacts for health wherever the infrastructure is

implemented or not, but if health is a primary concern it seems that a specific pattern of expansion in the most at risk neighborhoods may yield the best results, and should dominate expansion plans. In contrast, where the health benefits of cycling must be tempered through the consideration of its other 'selling points', especially its ability to directly or indirectly generate capital, a more modest claim should be made for cycling as the solution to urban public health issues.

Policy, advocacy, and research on cycling are embedded with the belief that “Bicycling is healthy” (Pucher, Dill, and Handy, 2009, p. s106). Indeed Pucher, Dill, and Handy (2009) go on to suggest that this understanding of the positive relation between health and cycling is “the conclusion of an increasing number of scientific studies assessing the impacts of bicycling on levels of physical activity, obesity rates, cardiovascular health, and morbidity” (p. s106). It is not the intention of this project to contest the physiological impacts of cycling, but it is important to recognize that these effects on health are not experienced in a vacuum, and instead relate to a complex interaction of materialities and social structures. Also it is important to see how this positive conception of cycling's effects on health, increasingly a common conception, is used to obfuscate the complexities of how cycling functions to shape the urban with both good and bad outcomes.

Safety

The relationship between cycling and safety has been discussed in policy at a municipal, State and federal level since the first phase of policy development in the

U.S. that I have mapped from around the 1970's through to today. As stated in the Boston Area Bicycle Project (Central Transportation Planning Staff, 1976):

The media will be used to encourage cycling and to encourage everyone to understand the cyclist's view of the road. Likewise, cyclists must behave like responsible road sharers. This will be accomplished through education and enforcement with the active involvement of safety officers and their fellow police members, schoolteachers and physical education instructors, driver education personnel and concerned cyclists (p. 66).

Safety officers, alongside other educators, were expected to encourage safe road use by cyclists and other road users alike in accommodating bicycles on the road. This investment in safety has continued through to more recent cycling oriented texts, yet there have been some changes in the emphasis of how it has been deployed. There has been the expanded use of overt numerical goals that are inversely related to the growth in cycling as a transportation mode – this is given particular visibility in the NBWS (U.S. Department of Transportation, & Federal Highway Administration 1994) where it was stated that “The goals are to double current levels of walking and bicycling and to reduce by 10% the number of bicyclists and pedestrians killed and injured in traffic crashes.” (P. XV). However, what I think has been key is that there is increasingly a need to relate safety numbers to the development of infrastructural expansion. It appears that in the current discussions of policy and advocacy surrounding cycling there is the need to demonstrate the

continued risks that face cyclists, especially in urban settings, and correspondingly to demonstrate a drop in these risks with the implementation of infrastructure. This not only demonstrates the continued need for cycling specific street design, but also demonstrates the safe and inclusive environment that this infrastructure provides for increasing cycling across a varied urban population. In the Alliance for Bicycling and Walking's *Bicycling and Walking in the United States: 2010 Benchmarking Report* they provide language that specifically points towards this dual sentiment around cycling safety:

Even though bicycle and pedestrian fatalities have been decreasing, bicyclists and pedestrians are still disproportionately at risk (p. 49).

The decrease in deaths indicates the impact that infrastructural expansion has had, but the continued 'disproportionate' risk still highlights the need for further expansion of cycling specific infrastructure, policy's, laws, and programs. As such campaigns to increase cycling become embroiled in these contradictory discussions that convey a “mixed message of encouraging more cycling, but then reminding the audience of the dangers and focusing on fear and safety” (Daley and Rissel, 2011, p. 215). Yet appealing for greater infrastructural expansion around cycling, and further investment generally seems to require a message that shows what can be done, but what is still necessary going forward.

Additional to the concern for proof of impact of the development of cycling infrastructure in the US, this orientation towards safety, and the increasingly

necessary numeric evidence of the risks that exist, and are mitigated, is needed to protect the labeling of cycling as healthy. As cities orient to wards “Promoting cycling for health reasons [this in turn necessarily] implies that the health benefits of cycling should outweigh the risks of cycling” (de Hartog et al, 2010, p. 1109). Cycling is broadly understood to promise “many benefits to the wider public interest, such as those to health” and is believed to “help to reduce the cost of maintaining the country's health services” (McClintock, 1982, p. 384). Yet this belief in cycling's positive health impacts relies on a continual decrease in the risks posed by riding on city streets. The concept of cycling being healthy and the connection between 'bike-friendly → livable streets → healthy cities' rests on the benefits of cycling for health outweighing the risk of traumatic injury from accidents, specifically car related crashes. So whilst cycling is increasingly related to cardiac health, and in helping to mitigate obesity related health issues, and to a lesser extent other health benefits, it must also demonstrate its relative lack of risk (de Hartog et al, 2010). This means a record and comparison of relative risk in relation to other forms of non-motorized travel, especially around car related accident, injury, and death is common within policy and advocacy documents. Additionally the need for continued consideration of cycling safety, is again demonstrated when the US is benchmarked against other nations. The US shows much higher rates of cyclist fatalities and injury compared to European nations, even when adjusted for kilometers traveled, and has shown a lesser decline in these numbers since the 1970's (Alliance for Biking and Walking, 2012).

Two countries that are used for comparison most often are Denmark and the Netherlands, home to what many consider are the worlds two most cycling friendly

cities: Amsterdam and Copenhagen. Without providing significant depth here since the 1970's both countries, and specifically their major cities, have taken comparatively significant steps at designing and implementing cycling specific infrastructure. Government spending on cycling in both these cities has outstripped U.S. spending per capita on cycling and walking combined by around six fold in Copenhagen and twenty fold in Amsterdam (Alliance for Biking and Walking, 2012). This comparison is used to compare the relations between mode share and program and infrastructural investment, but this also indirectly demonstrates the connection between infrastructural expansion and safety. The outcomes drawn from these numbers suggests that there is a continuing need for the USA to develop their accommodation of cycling in policy and infrastructure not only to increase mode share, but also safety: "It is crucial that the U.S. looks to other countries to see what mode share levels are possible, and how other international cities have increased bicycling, walking, and safety." (Alliance for Biking and Walking, 2010, p. 60)

Therefore government workers that are specifically working on cycling, and cycling advocates in particular, are caught in demonstrating an odd juxtaposition of safety related facts. On the one side it is important to show that cycling can be relatively safe, and therefore health benefits are not mitigated by the overly risky nature of cycling. Whilst on the other side they must demonstrate that cyclists are still in need of greater protection on the road, and that clearly this can be achieved through greater infrastructural expansion, legal protection, and policy consideration – highlighted through comparison with either domestic municipalities that have done more to accommodate the cyclist, or other countries that have done more, or lead the

way in designing for the cyclist. Lupton (1995) suggests that there are two types of risk, one that is posed by an external environment, and one that is the result of poor lifestyle practices. As Lupton states “the first views risk as a health danger to populations which is posed by environmental hazards” whereas the second “focuses on risk as a consequence of the 'lifestyle' choices made by individuals” (Lupton, 1995, p. 77). In the former the individual can do little to address this form of risk, it requires changes to the broader environment, whilst in the latter risk is mitigated through individual action. As such the first type of risk can be utilized to drive policy change, whereas the second type of risk helps generate a responsibility and the duty of individuals to change their own behaviors. In the case of cycling its relation to the risks of inactivity orient it as an essential part of the imperative of individuals to change their behaviors. In comparison issues of safety are the first type of risk, and as such are used as a means through which to demand increased policy attention, as well as programmatic and infrastructural spending on cycling from governments at various levels. The juxtaposition of cycling as dangerous, and yet with the potential to be safe, maintains a requirement of action by governments to support cycling as a means for individuals to efficiently address the imperative of health through as the cycle for active transport and for recreation.

As discussed in the city of Dallas bike plan, addressing cycling safety is at the heart of increasing participation, which in turn is essential to cycling's ability to offer “improvements in quality of life factors such as air quality, public health, and economic development” (City of Dallas Department of Sustainable Development, 2011, p. 1). Indeed there is a want to have more cyclists, but there is a want/need for

these cyclists to be safe cyclists existing in an environment specifically designed and regulated for safe use. Within the earlier documents in the 1970's, however, there was some blurred consideration here:

All but two of the communities contacted expressed some complaints about existing bicycle safety education programs. A need for stronger enforcement of existing bicycle laws and establishment of a procedure for inspecting bicycles was expressed by five communities. More explicit bicycle laws and more intensive bicycle registration programs were suggested by four communities (Central Transportation Planning Staff, 1976, p. 31).

It is clear that there is a burgeoning language around police regulation and taxation/regulation of bikes in this document, a sentiment that resonates into discussions of cycling safety today. However, in this document there is a greater consideration for bicycles ability to open the city, and that its mode of use was still undecided:

There is also debate within the cycling community as to which improvements really are most desirable. Experienced cyclists may prefer the speed of the open road to the tranquility of a separated path. But it is clear that that open road discourages many from cycling. The proposed improvements are intended to induce the latter group, but not hamper the more adventurous.

None of the proposed improvements will limit the cyclist's legal rights to the road (Central Transportation Planning Staff, 1976, p. 25).

In contrast, within contemporary policy documents there is a greater emphasis on policed regulation and control. For example in the city of Portland bike master plan they state that “Bicycle traffic enforcement efforts should encourage safe and lawful travel by strategically targeting high-risk behavior and locations, maximizing education benefits and focusing on community partnerships and communication” (Portland Bureau of Transportation, 2010, p. 102). There is little ambiguity here, cycling has clear rules and regulations, and the police is an integral element in enforcement. This enforcing of cycling laws to normalize road use practices, and ensuring the citing of “norm violators” (McCarthy, 2010, p. 1440) is set out with no hesitation. Again this pointed and concerted effort of ensure and enforce safe road use is necessary to increase mode share that “will improve road safety for bicyclists, motorists and pedestrians while helping the City of Portland reach its goals for mode share, climate action and energy-reduction associated with bicycling” (Portland Bureau of Transportation, 2010, p. 102).

This need to demonstrate the safe nature of cycling could be seen to ground the general orientation in policy, and with policy makers, to encourage a particular type of cyclist, 'the responsible cyclist'. We have resultantly seen “a response to central government pressure on local authorities to create more ‘cycle-friendly’ cities, making life easier (and safer) for the responsible cyclist” (Jones, 2005, p. 816). As such those cyclists that see the city as a space for thrill seeking, using it as a

playground for risky practices do not necessarily fit within this vision of cycling in the city. It is necessary to cultivate responsible cyclists not only to provide evidence that infrastructure will lead to a greater observance of road rules, but that in turn this will reduce accident numbers to strengthen the argument that implementing more policy, programs, and elements of street design specific to cycling will increase safety, access, and the positive impacts of cycling for urban spaces. If cyclists continue to flaunt the rules, and embrace risky actions whilst spending on cycling increases, the argument for further support of cycling in this manner becomes hollowed out.

The Right Cyclist – Cycling for Transportation

For those that advocate for cycling there seems to be an active process of centralizing the 'responsible-cyclist' for promotion, and at the same time a distancing of the risky or irresponsible cyclist. As Jensen (2013) further states distinct “imagined mobile subjects... are embedded in mobility policies and [the] construction of travel spaces” (p. 220). Thus certain forms of cycling are valued in advocacy, and receive increased support, whilst other cycling behaviors are not included in garnering support. For instance large-scale events such as the 'Tim Johnson Ride on Washington' have utilized celebrity visibility to promote the message of responsible road use by cyclists. This dual, but entwined, message, then, seems to be due to the contradictions that come with an activity that has been invested with such positive associations, but at the same time is stigmatized as a form of transport that allows the flaunting of road rules, or disrupts the usual flow of motorized traffic. As a result

there seems to be somewhat of a trade off in attracting support for cycling. There is promotion and recognition of the benefits of cycling for urban centers by advocates and government respectively, but this must be framed alongside a desire to reduce undesired cycling behaviors, the various stigmatized imaginaries of the cyclist that exist. For many advocacy groups then there is a great impetus to position cycling as a common good, when practiced in particular manners. As one cycling advocate expressed to me:

bicycles are a simple solution to so many complex problems. What is of interest to me is that cycling has so many positive benefits, and you can tie it to solving any problems of the day. Whether it is supporting healthy lifestyles in addressing obesity, or oil dependence, or the environmental catastrophe we are facing with climate change, or the simple fact of fun (M. Litman, personal communication, July 16 2013).

Yet this is an impetus expressed alongside an equally fervent attempt to regulate behavior and promote responsible cycling. For those that wish to promote cycling there is a need to demonstrate the increasingly responsible nature of cyclists as infrastructure expands, as this logic is used to argue for further support:

The long term standpoint of the advocacy community is that you get renegade cyclists because you're not accommodating them, not even giving them basic respect within the street. If you put in infrastructure and looking after people

they will start responding... there is no doubt that when you have bike lanes and stopping boxes most cyclists will think they belong there rather than thinking this space is for cars and I'm just trying to get through (M. Litman, personal communication, July 16 2013).

If bad cycling is supposed to be mitigated through more cycling specific infrastructure and general support, when investment does occur there must be a greater regulation of those cycling to be the 'responsible cyclist' to prove this logic. This then underpins advocating for cycling as investment leads to greater participation in responsible cyclists, that in turn leads to health, environmental, and economic benefits for cities. As such advocacy, and policy that supports cycling, is constantly taking steps to ensure this chain of logic. As without it, cycling ceases to be a cure-all for urban issues.

Aldred (2013a) discusses that “Cycling is unusual being a stigmatised activity also constructed as ‘healthy’” indeed “Many discussions of stigma refer to ‘unhealthy behaviours’ as attracting stigma (e.g. Peretti-Watel 2003); yet cycling seems to be a counter example, categorised as simultaneously risky and healthy” (p. 256). This has led to conflicted discourses, or at least discourses that are both in promotion of cycling, but at the same time denigrating of certain cycling behaviors:

Interviewer: Yea, so the question that comes out for me then is about the types of cycling you advocate for? I mean do you support things like BMX or

like the growing freestyle fixed gear culture with their vision of the city as a sort of playground? Doing tricks and whatever...

Jack: not really... I admit that we are kind of square... we look at it as traffic and that we should follow the rules. I do have a little bit of a problem with the trick riding and everything because it is dangerous to other people... I mean I'm okay with that stuff in parks or whatever, but I'm not okay with someone doing a BMX trick and running someone over or something.

Interviewer: Yea that seems a common thing with the bike advocacy groups I have spoken with, it's a very particular type of cycling that they support. Its the point at which it makes contact with policy makers easier because the type of cycling you're interested in is the type of cycling they are interested in.

Jack: Right, for sure

Interviewer: the kind of liaison between those two groups then becomes a bit easier...

Jack: yea I think that that's... its good for the people who are on bikes... I mean there is a place for that stuff, but it's not necessarily on the streets.

(J. Woody, personal communication, June 28 2013)

Certainly this expectation of 'responsible cycling' has become more pervasive in current policy and advocacy discourses, however this is not entirely new.

Documents from previous policy phases have also variously discussed responsible road use by cyclists, especially cycling as an active form of transportation:

No matter what the cause of the accident the cyclist is in danger of being killed or very badly hurt. There are several common causes. One is that cyclists are not responsible road sharers (Central Transportation Planning Staff, 1976, p. 7).

Similar discussions followed at the end of the next decade:

The board recommends the establishment of a “role-model campaign” in which responsible bicyclists would sign a pledge to obey all the traffic laws of the Commonwealth and be presented with a distinctive helmet at media events in May of each year to coincide with the proposed Bicycle Month (Commonwealth of Massachusetts, 1989, p. 7).

This has led to the close relationship for some cycling planners or program coordinators to work with law enforcement, not only to help enforce laws to support and protect cyclists, but also increasing the regulation of cyclists adherence to the laws of road use. However, the power enacted through this embedding of the conception of the 'responsible-cyclist' into policy is not only carried out through law enforcement, but also through a discursive normalization. It is a means through which to attempt to govern from afar the actions of cycling populations through normalizing techniques (Foucault, 1978). As Jensen (2013) discusses certain conceptions of a model of the cycling citizen “are embedded in initiatives to govern urban mobility (Jensen, 2011), where particular meanings are constructed, granting the movement

social significance and position. In this perspective, the way in which the policies envision people as mobile subjects is central” (p. 221). Indeed Foucault (1977) suggests that these discursive frameworks and the subject positions engendered within them come to be internalized, and therefore pervasive techniques of governance. Individuals can internalize these discourses to conduct their own subject expressions and practices, as well as those of others. Thus the proliferation of a particular model cyclist within the discourses of policy and advocacy documents, backed by the propagation of extensive data on the effects of (ir)responsible cycling, can function as a governmental practice.

Policy and advocacy at differing points attempt to govern through the distanced normalization of the responsible cycling subject, although this subject has not always been the same or unified. Certainly “the categories of mobile subjects [such as the responsible and irresponsible cyclist] target real-life people and their movements, or lack of movement, while the categories by no means are identical to real people. They are expressions of governmental initiatives to 'control mobility'” (Jensen, 2013, p. 221). So that while 'real' people may differ from these normalizations, we must pay attention to the idealized mobile citizen that an aggregation of various institutions, groups, individuals and non-human actors is attempting to normalize. This model citizen is safe, utilizes programs and infrastructure in the way it was designed to be used, as well as being willing to obey the rules and expectations of road use – especially in the eyes of the law. Any deviations from these model behaviors risks disrupting the positive framings of cycling in cities that form the basis of promotion from advocates and government

agencies. Failing to conform to responsible cycling actions threatens the connection between increased spending and safe, considerate road use. As such avenues for further support and funding are jeopardized, and resultantly I saw a common concern about 'risky' and 'irresponsible' cycling embedded in text, and expressed by many advocates and government workers.

Environment

The impact of cycling on the environment has been a regular presence in policy, advocacy, and popular press surrounding cycling. Indeed the initial suggestion of cycling's environmental impacts in the production of policy, and other formal documents, early in the 1970's coincided with a growth in the modern environmental movement (Hays, 1989). Although still not of mainstream concern, the growing visibility of environmental disasters such as the Santa Barbara oil spill in 1969 brought increased attention to human impact on the planet, its flora and fauna. Additionally there was the initial large-scale development of environmental based campaigns such as Earth Day, which saw its first iteration in 1970, and that continues to today. Carter (2007) discusses “Modern environmentalism came of age on 22 April 1970 when millions of Americans celebrated and protested on Earth Day; still the largest environmental demonstration in history” (p. 6). As such modern environmentalism was a consideration of cycling policy in this period of less formal policy development. However, this movement was still in its early stages, meaning that 'green' arguments that would become common sense, and centerpieces of the argument for increased integration of cycling into the urban context, were still

fledgling ideas. Indeed in the Boston Area Bicycle Project (Central Transportation Planning Staff, 1976), an informal policy advisory document, there was clear understanding of the importance of cycling in terms of its environmental benefits. Indeed “no pollution” was considered an “immense” individual and societal benefit that cycling offered to the people of Boston and its surrounds (Central Transportation Planning Staff, 1976, p. 3). However, despite this direct appreciation for cycling through its ability to alleviate some of the environmental concerns that center on the urban setting, and automobile use in particular, it does not play a central role in the document as there was also a belief that it does not hold that much traction with mainstream audiences: “In this country, environmental problems have not been seen as serious enough to encourage people to use the bicycle.” (Central Transportation Planning Staff, 1976, p. 5)

As Horton (2006) discusses “already during the 1960s and 1970s, influenced by new environmentalist discourses, the damage which cars in general do to society and the environment in general is coming much more into focus” (p. 43), but it is certainly still not a mainstream discussion. It would not be until the increasing formalization of cycling policy documents in the 1990's, at all levels of government from the federal introduction of the ISTEA down, that the environmental benefits of cycling would come to the forefront of discussion around the benefits of cycling. It was with this initiation of more formalized policy that environmental arguments became more centrally used as an essential pillar around which arguments were made for developing programs, and infrastructure, that would play a role in increasing cycling in U.S. cities. For instance in the *Massachusetts Statewide Bicycle*

Transportation Plan (Massachusetts Highway Department, 1998) there is discussion of the role cycling can play in addressing environmental concerns, extending requirements and funding structures from the federal to the state level:

ISTEA also recognized that improving and sustaining bicycling, either alone or in conjunction with other modes is a key factor in meeting environmental goals (p. 4).

This benefit of cycling for the environment was also shown support financially as bicycle oriented infrastructural improvements became eligible for Clean Air Act funding following the amendments to the act in 1990:

The 1990 Clean Air Act Amendments also have positive implications for bicycling and walking transportation. Under the requirements of this legislation, regions not in compliance with established air quality standards must reduce emissions to help bring them into compliance. Bicycling and walking improvements, both construction and non-construction, are approved Transportation Control Measures (TCMs) for attaining these goals and are eligible for special Congestion Mitigation and Air Quality Improvement Program (CMAQ) funding (U.S. Department of Transportation, & Federal Highway Administration, 1994, p. 4).

As such the discussion around cycling and the environment has somewhat been tied into, or at significant points has been related to the development in the modern environmental movement during the time period from the early 1970's through to 2013. This period of time saw a change from

What began in the late 1960s as an heroic effort by an incipient environmental movement to conserve dwindling natural resources and prevent further deterioration of the air, water, and land” to what over the next thirty to forty years would become “an extraordinarily complex, diverse, and often controversial array of environmental policies (Kraft, 2000, p. 17) and organizations.

The result of this progression is that over this time there was an increasing positioning of environmental policies at the center of various political agendas, and an increasingly mainstream consideration of environmental values so that they became “widely embraced by the American public” (Kraft, 2000, p. 17) in the contemporary U.S. context. With this increasingly common conception of environmentalism there has come a further and more central relaying of cycling's positive impacts for the environment. This has particular resonance with cycling for transportation, where cycling trips can come to replace trips made by fossil fueled modes of transportation, in particular automobiles. There is some alleviation of environmental pollution through bicycle use when compared to modes of mass transit, although much less then compared to mitigating car use. Indeed many policy

discussions that center on cycling, consider it within an intermodal transport system that includes mass transit, so less negative comparison is made. Compared to cycling for transportation, cycling as a means of recreation has little environmental benefit as it does little to mitigate other uses of polluting modes of transportation. Cycling for recreation rarely reduces use of a car, as it often does not replace another form of mobility. Additionally, what is also often overlooked in consideration of the environmental impacts of cycling is the highly pollutant nature of its production, especially for carbon fiber bicycles, often used for recreational cycling. This in turn further reduces the direct environmental impact that cycling for transport can provide, as any offset by transit pollution mitigation is balanced against an environmentally harmful production process. As an article in the online cycling website *BikeRadar* discusses:

For years cyclists liked to hang the eco-friendly tag on any aspect of our sport and pass it off as ‘doing our bit’. But the fact is that making bikes consumes resources, burns energy and produces greenhouse gases. According to Trek, the extraction of a single kilo of the raw steel, aluminium or carbon used in their frames releases 1.3, 4.6 and 5kg of CO₂ into the atmosphere respectively (Milner, 2011).

This in turn has spurred some of the industry leaders in the U.S. such as *Trek* and *Specialized* bicycles to initiate environmental programs such as carbon fiber recycling initiatives (BikeRadar, 2011; Huang, 2011). Indeed this environmental

concern for the production of bicycles, whilst still not often of mainstream concern in promoting cycling as part of building sustainable green communities, has in part provided the ground upon which niche interests have grown in producing bicycles from recycled materials. One such, ironic, industry that has grown out of this has been companies producing bicycles from scrap car parts (Dansie, 2013).

In addition to the intertwined development of cycling and the broader environmental movement (Kraft, 2000), the development of cycling in the U.S. has also grown alongside the expansion of the environmental justice movement. It was in the late 1970's when this movement started to gain visibility and support so that:

Some observers mark the start of the environmental justice movement in the summer of 1978, when network news carried the first stories of health hazards due to toxic waste dumping at Love Canal in New York. Others date the movement from *Bean v. Southwestern Waste Management Corp.* (1979), when black residents of Northwood Manor subdivision in Houston filed the first class-action lawsuit challenging the siting of a waste facility in their neighborhood as a violation of civil rights (Melosi, 2000, p. 44).

As such in addition to the overlapping growth in the wider environmental movement and cycling in policy, leading to the proliferation of language that relates the virtues of cycling to environmental benefits, there has also been points of association between cycling and relieving environmental disadvantages related to marginalized populations. This is sometimes directly in relation to exposure to air

pollutants, but also indirectly through the barriers to health and economic success posed by infrastructural design. The Baltimore city Bicycle Master plan specifically discusses that:

Bicycling is an inexpensive mode of transportation that can enable low-income people to find and keep jobs, access health care services, and take advantage of shopping, education, and recreational opportunities (Baltimore City DOT, 2006, p. 7).

The benefits of cycling therefore are not only directly benefitting the environment at large through mitigating pollutants, but also it provides a means of environmental justice where it is seen as integral in overcoming environmental barriers to health, jobs and services embedded in infrastructural design and the spatial organization of urban spaces.

Where cycling is framed as part of the solution to creating 'green' sustainable cities the imperative of the individual to take up the practice is not only in service of addressing their personal health, but also is in service of the health of the environment writ large. Cycling is a practice involved in addressing local and distant environmental issues, especially cycling as transport, whilst also playing a role in mitigating environmental injustices. In this sense cycling not only addresses global environmental issues, but also can contribute to solving the unequal impact of environmental degradation within local communities. As Žižek (2011) suggests the environmental degradation of the planet is indeed a serious risk for the continuation

of life, as it exists currently. However, the ways in which we are encouraged to address this risk often focus on correcting the moral failings of individuals, creating a responsibility to make the 'right' choices, rather than taking into account that “cycling practices are embedded in networks made up of competing discourses, differently embodied humans, other agentic nonhumans, gender, class and (dis)ability, social inclusions and exclusions, fear and danger, thrills and excitement” Cupples, 2011, p. 228). Resultantly, the solutions presented are in ignorance of the complexity of the collective process of urbanization and industrialization as part of the liberal capitalist system, processes that encourage and underpin patterns of environmental deterioration and exploitation. As Coleman (1976) suggested “Our modern environmental crisis is intimately bound to the practices and beliefs which have, at different periods in the experience of Western society, defined acceptable standards of economic behavior” (p. 28). Therefore as cycling is bound into the idea of individuals correcting personal behaviors to address environmental issues, this can also be ignorant of the changes in dominant modes of consumption and production that will inevitably inform how the environment is utilized in society.

The individual is being called on to make some moral alteration and change their behaviors to attempt to achieve some level of sustainability. However, within the modern capitalist project care for the environment seems to still be wholly a secondary concern. Whilst cycling is stated to improve the environment, this framing may well do more to outwardly display a moral righteousness, than make lasting change. I am certainly not suggesting that a broad effort to bring about environmental sustainability is not needed, as Kenworthy (2007) suggests “Such transport and

planning changes are infinitely preferable to an emergency scenario where vast tracts of suburbia might well collapse or where people have to create ad hoc transport systems” (p. 68) as oil resources deplete and the environment can no longer resist the effects of suburban sprawl. However, without broad shifts in transport patterns, and wider patterns of changes in society to support this, as well as other environmentally friendly reforms, we may still be headed for natural disaster.

Resource Use

Cycling is regularly positively referred to as a mode of transport that does not utilize carbon based fuel resources directly. It is therefore cast in opposition to other forms of mobility such as cars, motorcycles, planes and even more environmentally acceptable forms of mass transit. As human powered it then becomes cast in contrast to these others forms of mobility, whilst the large tracts of the city that can still be accessed through it as a vehicle stands it in contract to running, walking, or other forms of human powered mobility. Burke and Bonham (2010) discuss that “Many advocates have thrust forward cycling as a way to ‘solve’ an oil-related transportation crisis” (p. 272) citing in particular Ward (2008), Murphy (2008), p. 232), and Winter (2006) that have made particular reference to peak oil usage. This means that there has been a continuation of discussing oil usage and cycling throughout policy over the time I have studied. However, the form these references take have shifted from previous iterations in relation to the OPEC spurred fuel crises around the 1970's, to environmental and peak oil fears today. As Burke and Bonham (2010) go on to state “Bicycle advocates have been quick to embrace Peak Oil as another reason, amongst

many, to support their cause” (p. 272). This sentiment resonates from advocacy groups to many cyclists for whom this becomes a point of pride. It has even become the theme of ‘guerilla cycle art’:



(Figure 1. Cars Vs. Bikes. LOLwithMe.org, 2011)

This image draws on the idea of minimizing the use of fuel resources, especially in the face of their rising costs post peak-oil, whilst also engaging with the idea of health through the over abundance of 'fat' that we now face. The message embedded within this emblematic image, is that carbon fuels like oil and coal are more scarce, and therefore expensive, where as 'fat' is readily accessible within a context of a purported obesity epidemic in the U.S. currently. The association that is made is between the act of cycling as a means through which to exchange the costly and damaging use of carbon fossil fuels for the burning of fat, which is in seeming

abundance within obesity panicked western societies. In shifting to using 'human power' through the bicycle, those who cycle for transportation are using a more abundant fuel, whose burning is morally applauded, rather than burning a scarce fuel, whose use is stigmatized. As Kenworthy (2007) states the discourse that suggests "The most egalitarian and sustainable modes of urban transport are foot and bicycle which have few fossil fuel implications" (p. 50) is dominant. In contrast, Green et al (2012) found in their study that fossil fuel burning "car travel was universally described as not only dysfunctional but as inherently morally dubious" (p. 6). The effect of these resource related discussions of urban mobility between the bicycle and car mean, "the bicycle, unlike the car, is seen as helping to promote a safe and pleasant local environment" (Aldred, 2010, p. 36). The act of bicycling for commuting then is a means to avoid reliance upon an expensive and unpredictable resource, and has effects that are directly to the benefit of the environment and public health.

In the early proliferation of cycling policy, during the 1970's, the discussion of a reduction in the reliance on oil-derived fuels was primarily cast in the face of concern about foreign fuel reliance. As Horton (2006) states "The early 1970s were dominated by concerns over energy crises" (p. 43), in particular reaction to the OPEC imposed restrictions during this period. For the Massachusetts Bicentennial Commission (1975) this discussion of an 'energy crisis' was foremost as to predict the continued expansion of bicycle use:

The continuing energy crisis, the high price of gasoline, as well as the rising interest Americans are taking in their environment and in their physical well-being, would let one predict an increase in the current bicycle boom (p. 7).

In comparison the National Walking and Bicycling Study produced for the U.S. congress in 1994 demonstrates the shift to relate the impact of cycling on oil resources from a primary consideration of a foreign fuel led energy crisis, to a fear of environmental effects:

There are many reasons why government, working with the private sector, should promote bicycling and walking. Bicycling and walking are healthy, non-polluting forms of personalized transportation. *They do not consume limited natural resources* and do not require a costly infrastructure to support, since they can largely use the existing infrastructure if it is modified to meet their needs (Italics added for emphasis. U.S. Department of Transportation, & Federal Highway Administration, 1994, p. 2).

Additionally a similar theme in the consideration of the use of oil resources was demonstrated in the Benchmarking report produced by the Alliance of Biking and Walking (2010):

Transportation accounts for roughly a third of greenhouse gases in the U.S. (EPA), and so any CO₂ reduction plan must look at transportation solutions. Replacing car trips with bicycling and walking is an obvious solution (p. 62).

The lack of use of carbon based fuels positions cycling differently to other forms of mobility that have come to be dominant currently (Urry, 2007). Over time since the 1970's this non-reliance on fossil fuels has been central to policy and advocacy, however what is also clear is that the discussion has shifted over time. The positivity surrounding cycling as being an alternative to oil based transportation has changed from relating to energy crises connected with the OPEC crisis early on, to now have more connection with discussions of a post peak oil context. Within this positive framework, no matter its focus, "Cycling as a body practice could thus be seen as a means of displaying one's identity as a healthy, low carbon subject" (Aldred, 2010, p. 36). Through cycling individuals partake in a form of mobility that is in stark contrast to the car as "resource-hungry" (Aldred, 2010, p. 37), and can overtly demonstrate their resource consciousness that in turn associates with healthy, environmentally friendly, and fiscally sound choices.

The Production of Capital

Alongside discussions of the bicycles role for public health, the environment and resources use, as well as often set within these discursive framings, the bicycle is central to the neoliberal conceptions of cities as a mode of generating capital. As Harvey (2001) suggests the city functions as a site of capital production and the

bicycle, is believed to adhere to and enhance these capitalist potentials of the city. Certainly the economic effect of cycling in its many iterations is a prominent discussion for policy makers and advocates alike. The belief in the positive economic impact of cycling stretches across many municipalities in the U.S. such as:

The City of Boston bike master plan states that there is considerable “job growth and economic benefits that stem from bicycle-related industries and tourism.” (Boston Transportation Department, 2001, p. 3)

The City of Chicago bike master plan suggests that “Bicycling will play a critical role in Chicago’s economic future. It will help current and future residents traverse the City and attract new employers.” (Chicago Department of Transportation, 2012, p. 8)

In the City of San Diego bike master plan it is suggested that “A good bicycling environment can also mean good economic sense for businesses in San Diego by providing enjoyable and safe bicycle access to restaurants and stores” (City of San Diego, 2013, p. 8)

The City of Dallas suggest that the planning for supporting cycling is carried out in recognition of “the important role bicycling can play in improving the health and economic vitality of Dallas” (City of Dallas, Department of Sustainable Development, 2011, p. 2)

There is a celebration of cycling, not only as it does not entail many of the costs for individuals or the city that come with other forms of mobility, but as it creates new economic opportunities. George Maggio, a city of Baltimore employee echoed this consideration of cycling's economic effects when he discussed that “when I started working here there were only two bikes shops in town, and now there’s like seven so there’s been a demand for biking that’s producing businesses and jobs” (G. Maggio, personal communication, June 28 2013). When set against the production of economic plans to address the problems of continued post-industrial decline for many cities (Harvey, 2001), bicycles are proposed as a solution by providing a growing site of industrial production, as a private-public enterprise through bike-share programs, as a way to make the city symbolically attractive for tourist and entrepreneurial capital, and as underpinning the creation of 'livable' and attractive communities for immigration. In this sense cycling plays a role in the creation of new “Programmes of urban regeneration [that] have been undertaken with the purpose of renewing the image of long-deprived (and stigmatised) cities and neighbourhoods” (Ponzini and Rossi, 2010, p. 1039). However, it is important to recognize that these benefits are often understood in service of a narrow segment of the urban population. As Lugo (2013) suggests “When advocates talk about bike-friendly cities, they rarely mention social equity issues such as affordable housing, as evidenced by the League of American Bicyclists’ recent “bicycling means business” summit themed around using bike infrastructure as an economic development strategy” (p. 205). The bicycle and cycling has extensive economic impacts, yet it is the positive conception of what

cycling can do to increase business profits and encourage redevelopment in the urban setting that is prominent. Within this prominent focus on regeneration around “seductive culture-led policies”, of which cycling is a part, forces consideration of for whom this redevelopment is meant (Ponzini and Rossi, 2010, p. 1038). Although it may take time and extended contestation, gentrifying or regenerating processes bring fears of “disruption of social ties and loss of affordable housing that accompanies the middle class colonising of working-class neighbourhoods” (Freeman, 2009, p. 2080).

Cycling is presented as offering a myriad of economic benefits for cities, however the discussion of the role cycling can play in attracting an in-migration of a 'creative class' citizenry, or in drawing tourist dollars to a city appears to be common and prominent. As planners focus on 'whole streets' design, integrated into the planning of attractive communities that center of health, business, and amenities, cycling is a fundamental part of this urban vision. Many cities are seeking to re-build post-industrial and urban core spaces to attract citizens that in some ways reflect Florida's (2003) conception of a 'creative class'. For many, urban economic rejuvenation partially is routed through an attempt to “attract, engage and retain creative class residents (more specifically, artists, students, young professionals, creative entrepreneurs and empty nesters)” (Ponzini & Rossi, 2010, p. 1046). This becomes the focus rather than re-investing in services and programs for existing residents that are most in need. In turn this is then seen to be good for businesses that are geographically local to these gentrifying, affluent communities. Cycling centered infrastructure is understood to generate capital through rising real estate costs as a secondary circuit of capital generation (Harvey, 2012), providing an expansion in

equity for businesses located near these neighborhoods, as well as those who own property. However, the bicycle in turn also slows, and limits, the geographical distribution of these 'new residents' consumption patterns. On bicycles consumers are understood to shop locally. It is understood that they are more likely to take a short bicycle journey to local businesses, rather than spending their money in ex-urban consumption sites:

getting more people doing it also encourages... its been proven that in cities across the world that cyclists spend more locally... Than motorists do. It's easier to access retail sites and they have extra income as they are not spending as much on transportation. So when you start putting things in those numbers for business it's a good wake up call (G. Maggio, personal communication, June 28 2013).

Whether this pattern is necessarily the case, there is a strong belief in this logic for those that are advocating for cycling. Whilst at the same time these statements often indicate ignorance of the displacement of long-term lower class residents in these areas through a process of gentrification. As Lugo (2013) suggests "Bike advocates may not notice that changing street designs affect property values and long-term residents' senses of place, or they may not see this as a negative outcome" (p. 205). Certainly for many lower SES and predominantly black communities in Washington DC's North East and South East wards "cycling and bike lanes had become entangled in the divisive politics of gentrification, race and class in

the District” (Gibson, 2013, p.2) resulting in political misfortune for former Mayor Fenty. Gibson's (2013) comments therefore echo Lugo's (2013) observations, whilst highlighting a clear racial dimension to experiencing cycling. The experience of urban cycling, the planning and investment of its deployment, seems to be at the intersection of race and class based feelings of alienation from transport investment in a system that seems not to be meant for these communities. Gentrification services the interests of owners of property and capital, but is overwhelmingly negative for lower class citizens whom are likely to see rising rents beyond what they can afford and therefore patterns of displacement. In turn this leads to the destruction of communities, and a loss of identity for many from lower class populations as well as often minority populations.

Cycling continues to receive support as it is believed not only to play a role in enhancing an increase in local spending, and underpinning other forms of capital expansion, by having effects on real estate prices for instance, but also as it serves to attract investment into the city from beyond its borders. The development of 'cycle-friendly' communities makes cities, and their various neighborhoods, attractive to tourist expenditure. As discussed in the Massachusetts statewide bicycle plan (Massachusetts Highway Department, 1998), even at this early point in the refinement of cycling policy, investment in supporting cycling was believed to help bring in “visitors as well as increase usage by residents” (p. 45). In addition it was stated that “Bicycling offers several favorable aspects that are a natural match for tourism. Bicycling affords unobstructed sights, sounds and smells. The speed of bicycling allows visitors to experience all that a scenic location has to offer and still

move efficiently from place to place” (Massachusetts Highway Department, 1998, p. 45).

This latter focus on tourism and cycling demonstrates that for a long time this association has been believed to bring tourists to a city or region, whilst also moving them around the city spending money effectively. This tourist dollar has been more directly garnered within more cities recently through the development of cycle-hire schemes. Certainly the schemes play a role for residents, and are said to increase equal access to active and green forms of mobility, but they are also effective means of creating profit from tourist mobility in the city. Pay schemes are set up to charge more heavily for single day users, and increase costs exponentially with every additional thirty minutes of use. In addition these schemes have focused on downtown-spectacularized spaces, and seem to prioritize the use of the system in these spaces over poorer and geographically peripheral neighborhoods. Cycle hire may be framed as creating a city without borders as people gain access to a relatively cheap transportation option. Yet the requirements of a credit card for membership, and the limited docking locations continue to provide very real barriers to use for many segments of a cities population.

In addition for many the relative cheapness could provide an impediment to its use where “within a society in which exchange value is a key arbiter of social value, it [cycling] also carries the taint of cheapness” (Aldred and Jungnickel, 2013, p. 608). This may be a paradox for those that seek to truly make cycling an important mode share, one used by a varied segment of any urban population. Cycle-hire schemes continue to have barriers embedded in an economic system that is exclusive to those

that cannot maintain a consistent wage and therefore credit, and they may be too expensive where cut rate memberships are not offered. Yet it may also be its 'taint of cheapness' when these barriers are removed that also prevents its wide spread use. Although servicing residents and tourists is difficult to resolve for a city, cycle-hire schemes ultimately seem to be able to do both. The cycle hire scheme is an essential part of the current tourist city, playing its role as “City regimes now devote enormous energies and resources not simply to the basic and traditional municipal functions but also to the task of making cities, in the words of Judd and Fainstein (1999), ‘places to play’” (Eisinger, 2000, p, 316). Yet, the ability to resolve these two interests may be due to the increasing alignment of the interests of tourists and what is increasingly the aim of cities, a 'creative class' (Florida, 2003). Cycle hire schemes are not distinct from the shape and form of broader approaches to cycling policy and promotion in U.S. cities. Yet it may well be emblematic, or even the pinnacle, of how this approach to the 'creative' and 'tourist' city represents “a discursive-regulatory project which motivates cultural actors and mobilises political-economic interests, not necessarily implying substantial efforts to sustain the artistic community or to alleviate the condition of deprived neighbourhoods and disadvantaged social groups” (Ponzini and Rossi, 2010, p. 1043).

I do not wish to suggest that the bicycle becomes a point of purely capitalist exploitation. However, it is important to recognize the effects of the ways in which cycling is positioned as a predominantly positive means through which to generate capital. These discursive framings are used to address the interests of a particular set of stakeholders, and become the basis for a logic that some may attempt to thrust

upon cycling. In a particularly Marxist sense Harvey (2012) wishes to highlight the problems of this covert private exploitation of what could be a common good. Yet despite the particular theoretical underpinnings of Harvey's comments they remain important to understand how cycling is being positioned by some institutions, groups or individuals so that “Much of the corruption that attaches to urban politics relates to how public investments are allocated to produce something that looks like a common but which promotes gains in private asset values for privileged property owners” (Harvey, 2012, p. 79). Cycling can function to serve a more class inclusive citizenry, however when the benefits are accrued to capital this common good may do little to improve the mobility status of all those within the city. Instead a focus on cycling's ability to generate capital directly, or indirectly through the tourist city and gentrification, may signal that cycling may end up doing little to address the mobility issues of those that really need the support.

Benchmarking and Modeling – Domestic and International Inter-Urban Competition

As Lugo (2013) suggests “In working to increase the numbers of people choosing to bike, US bike advocates and researchers tend to emphasize urban form, often lobbying for northern European infrastructure models” (Lugo, 2013, p. 203). Indeed this international 'benchmarking', 'referencing' or 'modeling' has become a pervasive discourse in texts I have analyzed. The ways in which this comparative discourse is positioned and used is not monolithic. Indeed many different institutions, people and government entities utilize these comparisons in varying manners as framing tools. Also the cities, and nations, that are used for this benchmarking

process are not singular. Certainly two cities dominate this form of modeling internationally, those being Amsterdam and Copenhagen. As George Maggio, a city of Baltimore worker mentioned:

erm its like the old comparison, no one in Amsterdam or Copenhagen thinks of themselves as cyclists but they ride bikes... its like here its so normalized that "I'm not a motorist, I'm not a driver" its not a label that we're cognizant of but its definitely something that we are all doing. So its about getting biking to that point where we don't even think about it its just yep... (G. Maggio, personal communication, June 28 2013).

However, Bogota has received repeated comparative use as the home of the Ciclovía program.

There are many role models for cities to follow, as suggested by Table 5. Indeed, Bogota became a bicycling success story by importing Dutch bicycle planners and adopting many of the pro-bicycle measures found in the Netherlands. But it added its own particularly South American program of ciclovías. Cities with successful bicycling policies can be found in many countries, providing experience about the most appropriate package of policies for local conditions (Pucher, Dill, and Handy, 2009, p. s122).

In particular Baltimore has in differing spaces, by different actors, drawn on Bogota to develop cycling program support. A complex, and informal history, has led to the running of a handful of Ciclovía events in the city (Haskins, 2009). Indeed it is believed by many that “It would be good for city morale. It would be good for mixing things up racially and economically. It would promote exercise and business” (Hudson, 2011). Yet as it stands with less than 10 events being held in the city, almost all centered on the relatively high SES and predominantly white neighborhood of Roland Park, the possibility of the effects these events have been tempered. The Roland Park community group has provided the funding and support to make these ciclovía's successful, but the wider support and funding to make this a wider program across multiple neighborhoods seems to not have materialized. As Regina T. Boyce, Community Outreach Liaison for Baltimore City Council President Bernard C. “Jack” Young” stated in 2011:

extending the route to include other neighborhoods will take planning, resources, city agencies, traffic and police officers to ensure the safety of participants. They need to come up with a plan that looks at how other cities are funding this program so that all communities can enjoy this (Rodriguez, 2011).

Thus benefits are accrued for cities as they take cars off of their streets, and provide a more open access to these spaces to more of the cities populations. However, for Bogota these ciclovía events played a positive role as part of a broad

and integrated network of policy and spatial redesigns including the large-scale redevelopment of the public transport system, named the transmilenio (Pineda, 2010). Certainly this example is just one that shows the importance of benchmarking with other cities for the development of programs and infrastructure. However, what is also evident is that the like-for-like transplanting of models, or the importing of programs in a watered-down version, will lead to varying outcomes.

U.S. cities have seemingly varied in their commitment to adopting approaches set forth by other municipalities, especially from around the world. Yet there is an apparent, and ostensibly ever present, specter of cities from other nations that have been more aggressive in supporting cycling infrastructurally and programmatically. These cities set benchmarks for successfully crafting a bicycle friendly community, one that is integral to maintaining the labeling of these cities as leading livable communities in a global ranking. This in turn aids in making these cities leaders in addressing the health and environmental issues of the urban setting (Cervero et al, 2009), but also in attracting investment through tourist dollars (Eisinger, 2000) and building a creative class oriented economy (Ponzini and Rossi, 2010). As Bunnell (2013) suggests these “City toponyms are also prominent in wider popular and media imaginings” where cities are understood in their reference other municipalities (p. 13). As such whilst these “City toponyms are inadequate for, and even serve to obfuscate, the complexity of ways in which cities are (re)assembled in relation to a diverse multiplicity of elsewheres” they are important as they play a key role in how cities are understood, and constructed through benchmarking and modeling of urban centers (Bunnell, 2013, p. 13).

Cycling within federal policy

Whilst the policy, infrastructure, and programs of other municipalities around the world has played an ever present role in the formation of cycling within the U.S. domestically at the federal level cycling has also been located in various policy developments since 1970. Always present in various policy documents at the municipal, and to some extent the regional and state level, the specific discussion of cycling in federal transportation policy was lacking until around the early 1990's. Up to this point federal transportation funding focused on the expansion of the highway system. The *Federal-Aid Highway Act of 1944* and its successor the *Federal-Aid Highway Act of 1956* defined Federal spending in earnest on the nations roadways. In particular this spending was seen as “essential to the national interest to provide for the early completion of the “National system of Interstate Highways”, as authorized and designated in accordance with section 7 of the Federal-Aid Highway Act of 1944” (U.S. Congress, 1956, p. 378).

This focus on the funding and construction of interstate highways at the federal level continued to define policy until the introduction of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. As Whitaker (2012) states “Eisenhower’s interstate highway system would unite cities, states, and communities across the country, but with little focus on making streets more accessible and safe for Americans traveling by bicycle or on foot”. Whilst various small and informal policy and program advisory documents existed around the country at the municipal and regional levels, there was almost no consideration of cycling within federal policy.

Yet the smaller scale of cycling policy during this did stop state and municipal spending on cycling. Indeed Whitaker (2012) suggests that “Without real dedicated funds in place, though, states spent a measly \$40 million on biking and walking projects from the signing of the first highway bill in 1956 until 1991”.

The first major federal funding acts to consider cycling (ISTEA and the TEA21) and the National Walking and Biking Study all took place in the 1990's, seemingly is a similar point around which cycling specific policy became more formalized and forms of promotion and advocacy became more prominent. As is stated on the Federal Highway Administrations website “In 1991, Congress passed landmark transportation legislation, the Intermodal Surface Transportation Efficiency Act (ISTEA), that recognized the increasingly important role of bicycling and walking in creating a balanced, intermodal transportation system” (Federal Highway Administration, 2012). These acts of law loosely at first mandated certain infrastructural developments, determined funding structures, and outlined hierarchies of power within government at different levels. For instance the ISTEA had requirements that:

States are required to develop, for all areas of the State, transportation plans and programs which provide for the development of transportation facilities (including pedestrian walkways and bicycle transportation facilities) which will function as an intermodal State transportation system. A long-range plan for bicycle transportation and pedestrian walkways for appropriate areas of the

State must be incorporated into the long-range transportation plan for the State (Sections 1025 and 1033) (p. 6).

This quote demonstrates the specific language used around improving the accommodation for cycling and walking, but that this continues to leave a lot of room for interpretation. As part of congressional acts that addressed a wide set of transportation modes, support for cycling at the federal level was just one part of the policy. Indeed during the 1990's in the U.S. where we saw the first concerted inclusion of bicycling in federal transportation policy “bike and walking projects never exceeded one percent of federal transportation spending (not even accounting for air travel-related spending)” (Orcutt, 2000, p. 2). Following these initial federal transportation acts, there have been additional policy documents that have refined and reinstated funding structures from the ISTEA and TEA21. The first of these was the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)* in the 2005, followed by the *Moving Ahead for Progress in the 21st Century Act (MAP-21)* that was passed in 2012 resulting in “bike and pedestrian funds [being] distributed in a more competitive, locally focused way” (Higashide, 2012, p. 10). Each continues the federal approach, including provisions for cycling within a broad transportation act. The language is refined, but continues to be relatively open for state and municipal interpretation. In reference to metropolitan areas it is expected that:

The plans and TIPs for each metropolitan area shall provide for the development and integrated management and operation of transportation systems and facilities (including accessible pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system for the metropolitan planning area and as an integral part of an intermodal transportation system for the State and the United States (U.S. Congress, 2012, sec. 1201).

Similar expectations are laid out in the Act for states and non-metropolitan areas:

The statewide transportation plan and the transportation improvement program developed for each State shall provide for the development and integrated management and operation of transportation systems and facilities (including accessible pedestrian walkways and bicycle transportation facilities) that will function as an intermodal transportation system for the State and an integral part of an intermodal transportation system for the United States (U.S. Congress, 2012, sec. 1202).

In both documents specific reference is made to 'bicycle transportation facilities, however these are still only part plans and programs for all transportation modes. A consideration of cycling is required in state and municipal transportation policy, however what this inclusion of cycling should look like is not discussed.

Clearly there can be planning for cycling, but what these plans are, is completely at the discretion of state and city governments.

Non-transportation policy at the federal level has also created provision for funding bicycling around the country. In particular the Clean Air Act Amendments in 1990, in conjunction with the Congestion Mitigation/Air Quality (CMAQ) program, included funding for cycling. The Clean Air Act Amendments had 'transportation control measures' (TCM's) that included “programs for secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of bicyclists, in both public and private areas” (Environmental Protection Act, 1990, p. 29 Sec. 108). Also CMAQ funds include the potential to fund “projects that reduce ozone, carbon monoxide or particulate pollution” that stretches to cover bicycling and walking programs (Orcutt, 2000, p. 1).

Ultimately federal policy has certainly taken into account bicycling more thoroughly since the 1970's. This has gone from almost no consideration in transportation or other policy documents, to the specifically stated inclusion of cycling with the advent of intermodal transportation programs. Previous transportation acts had focused primarily on highways and motor vehicles, but with the ISTEA came an approach to addressing an integrated transportation plan at the federal level. Although there has been slow and small changes over the last twenty three years, the intentions of federal policy has been to make provision for cycling in addressing transportation planning, environmental issues, and the creation of safe road use where the MAP-21 (2012) made specific requirement for “Construction, planning, and design of infrastructure related projects and systems that will provide

safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs” (U.S. Congress, 2012, sec. 1103 p. 17). Federal policy resonates with all of the major themes I have identified in this chapter. As such it is reasonable to suggest that these acts have influenced cycling in its relation to health, safety, the environment, and the economy – especially as pursuing cycling projects has opened up competition for new central government funding opportunities for states and municipalities embroiled in inter-urban competition (Macleod, 2011). Despite this growing inclusion of cycling, it must also be recognized that the approach to including cycling within all encompassing intermodal policy, and the identified looseness in much of the language means that these federal policies have not defined cycling policy within the U.S. or defined cycling practices and discourses. There are connections between the micro act of everyday cycling with federal policy, yet to fully understand the implications of U.S. cycling policy a comprehensive study of the location of bicycling at all levels is needed.

Conclusion

Cycling policy, advocacy, research, and popular discourse has drawn upon, and is articulated to broad range of themes and contemporary urban issues. Cycling, at various points through the history I have surveyed, has been proposed as a solution to many of these issues. Yet, what has become clear is that there has been several central issues to which cycling has been proposed as being able to help address in cities. In particular these have been environmental issues, public health problems, economic regeneration, as well as urban planning around congestion and resource

use. Indeed these particular issues have come to be present across many of the documents I have analyzed for this project. In some form cycling has been proposed to make significant reductions in urban pollution and congestion, whilst also both directly and indirectly attracting investment and urban regeneration.

As discussed the orientation of the ways in which cycling have been positioned has changed over time. However, the bicycle as the solution to a broad set of urban problems has been recurring over time. As an answer to concerns around health cycling has certainly been drawn in to discussions of risk and chronic disease prevention where “the concept of lifestyle, construing at-risk behaviors as the sources of personal health problems and lifestyle changes as solutions to them” has become normalized (Wheatly, 2005, p. 199). Further these “Individualist policies of prevention resolve economic tensions and favor capitalist political interests” (Wheatly, 2005, p.200) thus extending the associations made between cycling's benefits for health and its positive economic function. Additionally cycling has impacted upon, and been “mobilised into the articulation of green visions” in the U.S. over the time I have studied, particularly as it relates to the urban setting (Horton, 2006, p. 42)

What also has become clear throughout this broad review, and subsequent time spent in each city, is that many of the belief's that have located cycling within the urban are often aimed at particular segments of the urban population in this country, or at the very least are not considered within wider necessary social, spatial and political changes that are needed to bring about change. It is not the aim of this project to prove or disprove the effects cycling has in a quantitative manner. Instead I

have sought to explore the differentiated ways in which these impacts have been proposed, and qualitatively what some of the impacts have been at various historical points.

Certainly cycling can have positive impacts for the urban setting in the U.S., however the impacts cycling has had have not been as simple as they are often presented to us in policy and advocacy in particular. In the next three chapters, each focusing within one particular city I will extend this broad introduction, and make further commentary on the role cycling has played within policy, communities, and upon the individual sensorial experiences of riding in the city. I have carried out research to understand how cycling in the city today conforms with, or challenges the articulations that have been made surrounding urban cycling to this point. Each chapter, through a more in depth interrogation of the specificities of cycling in each city, provides the information through which to understand how the formation of the city in relation to cycling today differs from its previous iterations.

Chapter 2: Boston – Resolving the tensions of cycling policy and neoliberal governance

Introduction

In this chapter I have provided a critical analysis of how cycling has played a particular role in the ongoing slide into neoliberal forms of urban governance in the U.S. currently (Hackworth, 2007). Through my archival work in the city it has become clear that Boston has had a long history with the bicycle. Thus through studying Boston's cycling policy over its more recent history I have been able to discuss the tensions that exist between an increasing neoliberal approach to governing the city, and the growth in federal expectations to expand bicycle related programs and infrastructure. Boston has both been advanced in its inclusion of cycling into its on and off street infrastructures, but has also been at the forefront of developing public-private systems to address the inclusion of the bicycling into the fabric of the city, specifically through a cycle-hire scheme named the Hubway. Indeed it is through embracing the bicycle as part of cost efficient growth planning that local governments have been able to address the need to fiscally purge “among other things, municipal budgets, social spending, and public sector employment” (Bedore, 2014, p. 2), whilst being able to “leverage local resources or amenities to lure mobile capital or foster local economic activity by providing incentives for private investment” (Tretter, 2013, p. 2225).

Boston is repeatedly discussed as playing “a central role in the history of bicycling in the United States” (Boston Transportation Department, 2001, p. 7). Thus whilst Boston is not often referred to as the most advanced cycling community in the

country, it does mean that the cities orientation to cycling differs from many other communities that have come later to a more comprehensive inclusion of cycling in policy and the built environment. Despite this, infrastructural network patterns that focus on downtown and high SES neighborhoods, as well as a focus on a public-private partnered cycle-hire scheme in the city, may suggest that the investment in cycling is primarily aimed at contributing to redevelopment through a focus on fostering a “creative economy” (Ponzini and Rossi, 2010, p. 1038). As such it appears that a focus on increasing cycling in the city may be doing little to address urban environmental, health, and economic issues, and may in fact “end up exacerbating social dualism, as well as exclusion and marginality of weak local communities” (Sacco et al, 2013, p. 5).

This chapter provides an in depth, historical discussion of policy development in Boston and the surrounding region in order to explore how cycling policy has or has not fit within a growing neoliberal orientation to city governance, and a more recent trend towards 'creative city' economics. I have spent time in city and state archives analyzing policy documents, forming a loose periodization of policy development, whilst corroborating and contrasting this with interview data from policy makers and cycling advocates. Whilst focusing on policy at the municipal, regional, and state levels I have also made linkages to federal policy, as there are significant relationships between cycling policies at all these levels (Harmes, 2011). Indeed the development of policy does not happen neatly within different scales of government, but often exists through the interaction of all levels of government and non-government agencies. The analysis of policy in this chapter is specific to the

Boston area, whilst also making commentary on some of the broader trends and tensions that may exist as more municipalities rely on cycling “In this phase of financially constrained urban governance” utilizing the bicycle in aiding “to confront ever-complex problems in social, economic, environmental, and health policy domains, but with new pressures to partner with non-governmental actors” (Bedore, 2014, p. 2).

The bicycle in Boston: a brief introduction

Whilst Boston has been one of several U.S. cities at the forefront of investment in cycling infrastructure, and has led in expanding and reforming cycling policy over the last four decades, its history with cycling extends even further:

throughout the 1880's and 1890's, Boston was a major center of the world's first bicycle craze. Bicycle clubs proliferated. They formed around college groups or towns or occupations. Boston was a point of origin and destination of bike routes from Hartford, Springfield and Albany. Today this first flirtation with the bicycle would be called “recreational”... But the so-called “recreational use” is not comparable to how we think of the occasional weekend ride today. Bicycling was taken with utmost seriousness in Boston. It was a sizeable industry for one thing... [however] By 1898 the 20-year love affair with the bicycle began to decline. Clubs began to consolidate, bicycle production slowed and even the famous Overman Co. failed in December of 1897. The city was changing. The suburban movement spread the town out

along the trolley routes, and the automobile was capturing the attention of those who had leisure and wealth. It is conceivable that only now, some 80 years later, has the bicycle, in a new, fast, light and maneuverable form, emerged from the eclipse (Central Transportation Planning Staff, 1976, p. 3-4).

This long history with cycling, before and since this seeming lapse in the presence of cycling in our cities, means that out of the cities I have studied in this project Boston stands in marked contrast. In Boston the maintenance of a global financial center in the downtown area, the relative distance from collapse of heavy modern industry in the area, a centralization of an academic industry toward the center of the city, and the relative racial homogeneity of the city have all played a role in the continuation of a dominant economic core. Indeed the city functions not only as the economic center for Massachusetts as a state, but also is central to the New England region where it is often referred to as the 'Hub'. As such cycling is embedded in Boston as part of its developed orientation towards “a creative economy as a leading force in [its] urban development strategies” (Ponzini and Rossi, 2010, p. 1038) at the center of the New England economic landscape. Compared to Baltimore, in terms of support from the municipal government, Boston appears to have a longer standing and more structured approach to supporting cycling. Where Boston has had a history of supporting and investing in cycling since the 1970's, Baltimore, with its more recent consideration of cycling and ongoing budget difficulties, seems to be in earlier stages of building a 'bicycle friendly' city, and integrating that into livable

communities or complete streets design. Certainly as Fred Pooling discussed in an interview, Boston has been spending money on cycling infrastructure relatively consistently:

historically Massachusetts was at the bottom of the list, 51... so behind Puerto Rico... which isn't even a state... in actually utilizing transportation enhancements funding... but that in a sense... that is a technicality, because its not that Massachusetts wasn't spending money on bicycle facilities because we were certainly getting bike paths and bike lanes... (F. Pooling, personal communication, August 6 2013).

The city may not draw on some of the more traditional funding sources open to municipalities in the U.S., but it has shown continued commitment to funding cycling projects, especially in servicing its strong business and tourist downtown core. Boston continues to draw on several iterations of the city to attract tourists, private business, and creative class dollars (Peck, 2005). Boston is promoted as a historic city, a financial city, recently a 'strong' city, and a livable city for which cycling is an integral part. Thus Boston has for a long time integrated cycling into urban planning/design, as well as the image of the city:

The City of Boston is committed to encouraging and facilitating safe bicycling for utilitarian and recreational transportation. The City also recognizes the job growth and economic benefits that stem from bicycle-related industries and

tourism. Over the years, the City has worked to improve bicycling conditions through improvements to its roads and paths and education efforts promoting bicycle safety (Boston Transportation Department, 2001, p. 7).

Indeed for Boston Mayor Thomas Menino the Boston Bike Share (also known as the Hubway), as the most prominent and public display of a municipal commitment to cycling, “represents how far we have shifted in our thinking about transportation in our city.” (Mayor Menino quoted in wbur.org, n.d.). Indeed Menino re-iterated this sentiment just before leaving office in 2012 by stating in the new thirty year network plan that:

Three years ago I declared “The car is no longer king in Boston” and since then Bostonians have taken more than one million rides on New Balance Hubway and nearly doubled their daily ridership to work. I’m proud of the 65 miles of bike facilities we have installed in the last three years and of our Silver Bicycle Friendly Community designation. This Bike Network Plan will improve the quality of life for every Bostonian and help keep Boston strong by improving our health, our air quality, and reducing congestion on our city streets. I know that this Bike Network Plan will help to transform Boston into a world-class bicycling city and make it possible for every Bostonian, young and old, to get out and ride (Boston Transportation Department, 2013a, p. 1).

Boston has had a long, yet non-linear commitment to the bicycle as integral to the fabric of the city economically, politically, symbolically, and culturally. This history born out of, and in combination with the specificities of the cities physical and social landscape has underpinned the unique positioning of cycling for Boston. However, the city is always embroiled in the seeping and pervasive logics of neoliberalism, as well as being governed under an umbrella of federal policy. As such cycling in Boston, in its peculiar and particular forms, demonstrates the ways national transportation, environmental, safety, and economic policies effects local politics, programs, and infrastructure. However, it also demonstrates the tensions that may exist as cities embrace neoliberal logics “characterized by deregulation, privatization, welfare state retrenchment, free trade, capital mobility, and attacks on organized labor” (Posey, 2011, p. 299) in light of expanding policy at all levels of government. Certainly what seems on the face to be an expansion of government encouraging the creation of more policy and spending at all levels, appears to be in contradiction to the neoliberal urban project (Hackworth, 2007). This analysis of Boston is an exploration of these apparent tensions, showing how requirements to expand cycling in the city have been incorporated into the neoliberal urban growth machine (Tretter, 2013).

Methods

Throughout this section I adopted a form of Critical Policy Analysis (CPA). There is not extensive work on critical approaches to policy analysis, but Marshall (1997) provides some key insights. Marshall's (1997) text focuses primarily on

education policy, with a particular interest in the gender inequalities embedded within these policy frameworks. However, there is an also broader approach to analyzing policy that has guided my engagement with policy. As such I have focused on the need to critically consider the role of policy in creating power imbalances, and forms of marginalization. Marshall (1997) discusses that “Critical theorists place at the center of analysis the power, policies and structures that restrict access; their work often demonstrates how privilege is maintained and the disempowered and silenced are kept that way” (p. 8). Certainly my assessment of cycling policy has identified places in which certain relationships are maintained. However, much of the power that is discussed in relation to these policy documents is in recognizing the associations that have been opened or restricted as these policies have changed over time. I have sought to develop a broad mapping of policy development, followed by attempts to understand how this has facilitated or foreclosed upon powerful relations. As Aldred (2012) suggests policy trends over time “complement sector-specific factors” (p. 95), and therefore this historically informed mapping of policy is important in impacting upon cycling communities and the experience of riding in the city. Analyzing policy in this chapter provides a discussion of its particular deployment in the city of Boston, but also relates to how policy has changed over time for municipalities in a broader sense.

This critical analysis focused on policy documents, both contemporary and historical, whilst also engaging other non-policy documents that came to light during my time in the archives and online. Certainly there were times that I sought the microanalysis of certain texts, yet my focus was a broader reading of these documents

in relation to each other, as well as other sources of information from interviews and historical texts. CPA as a form of CDA involves the examination of “sentence structure, verb tense, syntax, lexical choice, the internal coherence of discourse, and so on” whilst also developing an examination of “broader features of the production and consumption of discourse”, although in this case more so production (Wooffitt, 2005, p. 138). I have included certain textual excerpts that I thought were particularly important, not just in their role as indicators of the broad themes that came out of the policy documents I analyzed, but also for their particular wording choices. For example federal policy language during the 1990's, a period of initial cycling policy formation, the language that was used was purposefully loose and open:

In general – Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each Metropolitan Planning Organization and State (TEA21, 1998, p. 70).

Certainly this statement is important in considering the way in which cycling has been planned for at the federal level in the US, as this is part of the second key federal act for transportation that makes specific consideration for cycling. However, what is also key here is the use of terms like 'in general' and 'due consideration' that highlight the flexibility in enforcement of these acts for cycling. This is one specific example of the close reading that was carried out, but it is important to re-iterate that this was secondary to a critical macro analysis of these texts as they came to play a role in constructing historical and contemporary contexts that contributed to how

cycling was understood in planning nationwide. I followed Marshall (1997) in seeking to map and analyze “‘Logics’, ‘models’ or ‘frameworks’ [as] important units of analysis in public policy for probing policymakers’ thoughts” specifically as “They are the basis for policy formulation as well as ‘standards of how to judge and criticize policymaking performance’ and have the power to offer different definitions of what is real and important.” (p. 5)

A month was spent in Boston collecting and analyzing documents through close reading from city and state archives. Most of the material was housed at either the Boston Public Library, or the library at the State House located in Boston. In addition to municipal and state documents, both sites also included national policy documents, as well as documents from national organizations. Documents were read for major common themes, especially as they arose within particular time periods, and notes were taken to record some of these commonalities or differences. In addition particular segments of text were recorded for quoting, or more detailed analysis. In total around 30-40 documents were analyzed, including physical documents housed at the two sites, and electronic documents located online. Many documents did not provide pertinent information about cycling that was used in this project, others were broadly discussing road and mass transit networks and did not have any information regarding cycling specifically, but were useful in framing general changes in transportation policy. Copies of electronic documents have been kept, photocopies of microfiche were made, and direct quotes have been recorded. However, full copies of all documents read and analyzed were not made or kept as part of this project.

Cycling in the creative neoliberal city

Neoliberalism, or as some would contend the more useful term neoliberalization (Brenner et al 2010; England and Ward, 2007), have been analytical terms that have been used for well over a decade now (Lauermann and Davidson, 2013). This deployment of the term has had multiple iterations across various fields and sites of study, including analyses of the urban (for an in depth mapping of neoliberal scholarship see: Lauermann and Davidson, 2013). Yet in broad terms neoliberalism describes both a broad ideological framework, as well as a contextually specific and contingent set of practices. As Brenner et al (2010) state, “In the most general sense, neoliberalization denotes a politically guided intensification of market rule and commodification” (p. 184) that comes to be enacted through “assemblages of more or less distanced economic relations which will have different intensities at different locations” (Amin and Thrift, 2002, p. 52). This framework, and set of practices/policies centers on austerity in government spending, retrenchment of social welfare mechanisms, increasing privatization of previously government projects or entities, focus on the individual actor, and the reliance on the market based system in a belief of its efficiency to address the provision of resources. Indeed it could be said that the term is “used to reference almost all market-based governance projects (and many other contemporary governance phenomena)” (Lauermann and Davidson, 2013, p. 1278). As such it is important to understand neoliberalism in this sense as both a general logic, but that it is experienced in very particular “actually existing neoliberalism[s]” (Brenner and Theodore, 2002, p. 349). The core tenets of

neoliberalism may be ever present, even if not termed as such, as a logic to governance, but they have very real, even if not always intended, impacts on lived experience. Ong (2006) makes compelling arguments for neoliberalism functioning through creating exceptions, particularly in the global south, yet Brenner, Peck and Theodore (2010) suggest that:

if progressive analysts and activists focus their efforts predominantly upon locally and regionally specific “alternative economies”, and bracket the broader systems of policy transfer and the geoinstitutional frameworks that impose the rules of game upon such contexts, they will also be seriously limiting their ability to imagine—and to realize—a world in which processes of capital accumulation do not determine the basic conditions of human existence (p. 343).

Thus taking on board both the consideration of the existence of an overarching, yet at times poorly expressed, logic, which is only experienced and understood in its lived specificities, is imperative. In light of this I now turn to the particular ways in which these broad neoliberal logics inform urban governance, and where cycling relates to this approach to the city.

Certainly “the rise of a neo-liberal ideology in urban policies have all led many cities to define and implement entrepreneurial development strategies” (Vivant, 2013, p. 57) especially in the light of related processes of globalization and post-industrialization. For more and more cities cycling has become a part of this urban

neoliberal approach, however when explored within cities or regions it is clear that there are context specific ways in which it is carried out. This is the case for all projects within the neoliberal city, and cycling is no exception. In terms of policy, programs, and the built environment cities have pursued cycling differently, whilst many still loosely adhere to a dominant and broad neoliberal logic where “ecological and neighbourhood concerns about ‘livability’ and ‘environmental quality’ seem to have become central to a growth machine agenda” (Tretter, 2013, p. 2225).

Cycling, especially expressed as a program of private-public partnered investment, aligns with the rise of neoliberal urban governance. As an individualized, low investment, and commercializeable way to provide support for transport and public recreation it services the main criteria of neoliberal informed ways to govern. The effectiveness of cycling to service the goals of municipal governments within this ideological and structural imperative to adhere to the core tenets of neoliberalism has been accentuated in the U.S. post the economic recession of the late 2000's. Cycling when cast as relatively cheap, sustainable, and effective at boosting particularly local economies outside of the global economic system, supports “the familiar line of regulatory restraint, privatization, rolling tax cuts, and public-sector austerity” that post recession “are in fact being pursued in an even more sternly necessitarian fashion than before” (Peck, 2013, p. 134). As the neoliberal city shifts to even more revanchist modes of governance cycling is embraced as a cheap and sustainable way to attract capital in the new urban economy.

Cycling is seen to be one of several healthy and “Environmental amenities [that] are yet another asset that can be used to boost a city’s fortunes” (Tretter, 2013,

p. 2225). This post-recession economy is embedded with fears of the failure of large-scale financial systems and impending environmental disaster, demanding attention to forms of local sustainable growth (Posey, 2011) that satisfies “increasing political awareness about global environmental degradation, middle-class concern for a higher quality of life and image campaigns that present these old industrial cities as clean” (Tretter, 2013, p. 2226). It is this context that has energized the shift from traditional modes of neoliberal economic strategy, to urban economic plans that center on fostering the 'creative' and 'livable' city. Whilst the development of “metropolitan space as an arena for culturally propelled growth” is not a new process, it is recently that more cities have turned to fostering a creative urban economy (Silk and Andrews, 2011, p. 434). Indeed “The general tenor of debates about creative cities has added a particular twist to the older neo-liberal discipline of foreign direct investment” (Pratt, 2011, p. 124), so whilst “the elusive notion of a creative city is nothing more than a new construct of old-style neo-liberal urban strategies” (Vivant, 2013, p. 57) it does suggest a novel expression of the neoliberal doctrine.

The particular focus on attracting long term migrants that are part of 'creative' economic enterprises, through providing an environment amenable to their requirements, is in many ways particular to the current moment. The continued success post recession of “innovative clusters (particularly in the Silicon Valley) has spurred the development of similar economic initiatives, as many local and national government bodies have developed economic and urban policies to secure these types of creative activities” (Vivant, 2013, p. 58). Thus whilst still a refinement of old core tenets, the fostering of the 'creative city' seems to be an assertion of particular

economic, political, and cultural answers to the current post recession, post-petroleum, public health crisis dominated U.S. context. As Pratt (2011) suggests for those that govern cities the model of a 'creative city' "presents them a 'human' or 'cultured' face" (p. 123), that "on the surface [appears] to be a win-win solution: [providing] a nicer, safer, cleaner city and more jobs" (p. 125). Cycling services this model in many ways, both indirectly and directly. Cycling is considered as being a creative industry itself where numbers of artisanal bicycle manufacturers has grown in the U.S., demonstrated by the premier trade show for handmade bicycles "growing by leaps and bounds" (Velonews, 2009) since its inception in 2004. Indirectly cycling programs, policies, and infrastructure are appearing to become essential parts of developing livable communities, with all the necessarily healthy and sustainable amenities these people and industries expect.

Cycling contributes to the economic success of the city as it relies on its ability to "attract decision makers and (cultural) tourists to cities" (Pratt, 2011, p. 124). In projecting a commitment to building healthy and sustainable communities cycling becomes bound into what is believed to entice a creative class (Ratiu, 2013, p. 127), and in turn tourist dollars. Cycling becomes symbolic of a new progressive politics, and in suggesting a limitless potential of the city through its sustainability, relates directly to the economic model of the contemporary city predicated on the idea that "creativity produces a limitless supply of ideas and knowledge" (Ratiu, 2013, p. 127). Cycling not only mitigates the costs of the urban setting, or at least relocates the duty to address them on to the individual, reducing the need for public spending, but it also plays a role in expanding the ways in which cities can compete for capital. As

such cycling is a part of U.S. cities shift “away from seemingly erstwhile primary commitments to translate tax proceeds into collective consumption and public service provision for local working-class citizens in favour of commitments to lower the taxes of business and wealthy entrepreneurs to generate growth per se by courting the private sector and cultivating economic enterprise across the urban landscape” (Macleod and Jones, 2011, p. 2444). As Mayor Menino stated in regards to Boston's greater commitment to cycling:

Last fall, I kicked off the City’s annual Hub on Wheels event, joining 3,000 people for a bike ride across our city. Now, we are going to improve Boston’s cycling infrastructure, starting with new bike lanes on Commonwealth Avenue, between Kenmore Square and the BU Bridge. This is one of the busiest cycling corridors in Boston, with thousands of people commuting by bike every day. With your support, Boston is showing the world what it means to be a 21st Century City (Menino, 2008).

Thus cycling is integrated into Boston's attempts to sell itself, bringing in companies and individuals in the creative industries for whom cycling is understood to be a core amenity. For Menino there is a clear belief that cycling is fundamental to Boston's image as a modern global city. Boston is 'showing the world' how a commitment to support cycling through redeveloping infrastructure is core to ranking as a '21st century city' necessary in the global urban competition for capital. As While et al (2004) state “there has been the widely documented emergence of a `new urban

politics' (Cox, 1993), in which various local interests and coalitions have attempted to enhance the economic value of urban space and attract mobile capital in the restless quest for wealth and accumulation” (p. 549), and cycling is emerging as part of this growing imperative for national and international economic competition.

However, the positive image of the bicycle does little to detract from the negative consequences that come with the formation “of a particular city built for a particular audience, one that makes it easier for the privileged group’s quality of life, and makes it implicitly worse for others” (Pratt, 2011, p. 127). With a focus on servicing this creative renaissance in cities “the resources are generally focused on particular versions of ‘quality of life’ and are targeted at making the quality of life of the few rather than the many better (that is the middle or senior management, and/or cosmopolitan lifestyle migrants)” (Pratt, 2011, p. 125). Indeed Pratt (2011) goes on to suggest that the exclusive nature of these investments means that cities are intentionally structured to become “essentially consumption hubs, and as such [are] unsustainable, without huge re-investment periodically” (Pratt, 2011, p. 125). The creative city in its narrowly directed investment for attracting new residents, a new creative class, fostering a site for middle class migration and in turn tourist dollars, does little to account for those already bound to the rotting post-industrial core-peripheries of our cities. Cycling has the potential to service a wide segment of urban populations, but once drawn into this creative project symbolically and structurally it has the potential to be part of “creativity as an example under capitalism of a total exploitation of body and brain that high Fordism never achieved” (Pratt, 2011, p. 126). It is the physically (in)active expression of investing in the creative city that

“may actually pave the way to developmental initiatives that exacerbate issues of social marginalisation and exclusion” (Sacco et al, 2013, p. 3).

This chapter demonstrates where policy in Boston has supported the increasing integration of cycling into the neoliberal, but now more importantly the creative image of the city. It is an analysis of where cycling has been located in relation to this underlying neoliberal logic to urban governance. However, it also shows where this breaks down, where cycling also highlights that the “neoliberal intellectual project has fissures at key moments” (Liu, 2006, p. 715). Cycling in various guises is seemingly part of the neoliberal project, yet it is also enacted in ways that are specific to a multitude of urban contexts, and that match the incoherence of the broader neoliberal project. The “construction of cycling as a ‘win–win solution’ to public health, environmental and economic problems” (Aldred, 2012, p. 95) can paint a bleak picture for cycling as just another tool in “the transformation of cities aspiring to an antecedent ‘creative epicentre’” looking to expand the “frontiers of neoliberalisation” (Bunnell, 2013, p. 6). However, what has also become clear through my analysis of Boston's cycling policy is that it is a messier process than some of its outcomes would suggest, and that many of its outcomes are unexpected or unintended. Cycling variously adheres to the neoliberal, and more recently the creative project, for U.S. cities, yet as McCann (2011) suggests “Policies, models, and ideas are not moved around like gifts at a birthday party or like jars on shelves, where the mobilisation does not change the character and content of the mobilised objects” (p. 111). As Boston is integrating broad neoliberal and cycling

policy models, they are changed, expressed in ways that are specific to the setting, and have the potential to change over time from their previous or intended iterations.

Phases of Cycling Policy within the neoliberal order

The development of policy since the early 1970's has been an incomplete and oscillating process. Over this time there has been an identifiable general trend towards a greater and more refined presence of cycling specific policy. However, this pattern of development is marked by discontinuities and disruptions throughout. Certainly the arc of progression within cycling policy for the city and region is not the result of some grand plan, and in fact continuity seems to break down over much shorter periods of time. As an example I asked Jane Morhugh (a City of Boston employee) about the new thirty year network plan that they were finishing writing at the time of our interview, and its relation to the old Boston City Bike Master Plan, her response was as such:

Interviewer: I guess I was just thinking about the progression from the previous bike master plans, the city has had one since 1994 or something, so is the work you are doing with the new 30 network plan to develop and refine the policy from the previous bike master plan? Is that something you are building out of now

Jane: A bike master plan in Boston?

Interviewer: Yea the Boston bike master plan...

Jane: I don't know about that... Lets just say I was born in the 1990's...

(J. Morhugh, personal communication, July 30 2013)

What this interview data demonstrates is that although there are commonalities and continuing elements that can be highlighted from one policy document to another, there are moments of overlap, (re)cycling, and breaks in this policy development that are introduced in various ways. In this case one of only three employees' that specifically works on cycling in the Boston government could not identify a major previous policy document, and its impacts on the creation of new policy. This non-linear production of policy is somewhat representative of the complex, and often convoluted process of bringing policy into place. At different points historically various materialities, processes, institutions, and people have played roles in the policy process around cycling. Cycling has broadly shifted from being small scale, and promoted at the interest of informal and often culturally radical groups initially, to being drawn into the shifts in federal transportation policy, and most recently being essential in the increasingly refined and privatized approaches to urban governance expressed by many municipal governments. This general trend highlights the continued normalization of public-private partnerships (P3's), as well as other mechanisms and programs as part of the formation of the neoliberal creative city (Erie et al, 2010). Certainly "Cities have, of necessity, become more entrepreneurial" and although this does not have coherent effects upon urban governance "Many cities have also turned to partnerships with the private sector to obtain additional resources for redevelopment objectives" (Erie et al, 2010, p. 645).

What has become clear is that there exists an identifiable general trend in the development of cycling specific policy for Boston, but also that there are continual tensions and challenges to this pattern over time. Thus while cycling policy has generally not been in contrast to a slide into neoliberal urban governance, it has at times provided the ground for deviations and specific iterations of these logics. Where cycling is imagined as 'green' and 'healthy' it is seen as part of a vision of sustainable growth that “diffuses potentially disruptive political opposition” to urban regeneration (Tretter, 2013, p. 2225), contributing to a continuing “status quo of social inequality” (Sacco et al, 2013, p. 5). Where as in other moments cycling has the potential to open up the city to more people as a more equitable form of urban mobility, where it already has “global status as a humble and proletarian mode of transportation accessible (and indispensable) to the urban poor” (Gibson, 2013, p. 3). Cycling policy in its various phases has been reactive to shifts in the political, economic, and cultural landscape. This section focuses in on these changing terrains and the related developments in policy, mapping how various tensions and deviations have impacted upon how cycling has come to be formed currently for the city of Boston.

With this understanding in place I will propose three phases to cycling policy in Boston starting from the 1970's, a time of massive growth for cycling where at the end of the decade “Almost as many bikes were owned per 1000 population as cars in the U.S.” (EPA 1979, p. 8). The discussion of periodizations of policy is not unique to my study, although the periods that I have outlined are specific to the conjunctural formations of the U.S. more broadly, and to Boston in particular. Each phase denotes

a general pattern, and certainly there are specific examples from within each phase that deviates from the overall trend of that phase. However, with the creation of this periodic model of cycling policy in Boston I am able to show where this policy has tended towards, or been in opposition to neoliberal practices in urban governance (Peck and Tickell, 2002). In addition I will demonstrate how changes at the municipal level have taken place in reaction to changes in federal policies, exploring whether this has caused certain tensions with “the mix and emphasis of a neoliberal analysis and policy prescription” in the city, where “the enemy is clearly government” (Berry, 2014, p. 2). Overall this model helps address whether or not, and in what instances, cycling policy within Boston has reflected a shift towards the formation of the neoliberal city, or if through mimicking expansions at the federal level cycling policy has contradicted neoliberal doctrine (Newman, 2013).

Phase 1

The first phase of cycling policy in the U.S., stretching from around 1970 to the introduction of the ISTEA in 1991, is marked by a dominance of policy documents that are mostly either informal local, and trans-municipal projects, or private projects. One document stands as typical of this moment in cycling policy for the Boston area, named the *Boston Area Bicycle Project* released in 1976. The document brought together Boston city with several surrounding municipalities in developing a joint document for the Boston metro area including Boston, Cambridge, Somerville, Brookline, and Arlington. The document was not only meant to support the development of cycling infrastructure and policy within each municipality, but

also served to provide benefits to the region as these towns cooperated as part of the metro area:

These cities and towns truly view themselves as segments of a metropolitan area. It is this regional view which allows unprecedented cooperation and mutually beneficial rewards (Central Transportation Planning Staff, 1976, p. 1).

What was also clear in this document was that it was not an act of law for any of these towns or cities in terms of their cycling policy and infrastructural considerations. Instead the document was a proposal and an advisory document for best practices and considerations, especially in supporting the JTRC:

The Joint Regional Transportation Committee (JRTC) is the Transportation Policy Advisory Group for the Boston region. It was established in January of 1973, when a memorandum of understanding was entered into by four state agencies.” and it is also “the advisory group recognized by the Federal Government as the mechanism providing overall policy guidance in matters of area wide concern in transportation decision making (Central Transportation Planning Staff, 1976, p. 1).

As such these documents at this time did not necessarily dictate practices, but did play a role to strongly inform and influence urban planning and development.

Often these documents were strongly supported by a “hardcore” of cycling enthusiasts who were often part of cycling clubs in the area (The role of these clubs would increasingly be taken over by bicycle advocacy groups, with some different structures and intents). For instance the advocacy group that Paul Jennings directed in Boston was the current iteration of a group started in the city around the 1970's:

Paul: MassBike actually started in the 70's as the [name redacted]... we have a great history in T-shirts about the organization...

Interviewer: Yea those are some great T-shirts hahaha

Paul: erm... we only became a statewide organization in the mid to late 90's... erm... and yea I think it... in the 70's it was stemming from a kind of new found environmental consciousness and the oil embargo...

(P. Jennings, personal communication, August 6 2013)

This group in its early form played a large role in advising local communities, as part of the group involved in producing the Boston Area Bicycle Project (BABP) (1976) document. As Paul highlights this group, and the BABP document was representative of this early phase in policy for the Boston area, born out of a greater environmental and oil usage awareness. An EPA document from the end of the decade titled *Bicycling and Air Quality Information Document (1979)* echoed Paul's suggestions where it states that:

the importance of aerobics and physical fitness was receiving widespread publicity during this period as well as environmental concerns. In addition, the OPEC oil embargo which occurred during 1973 and 1974, created gasoline shortages (EPA 1979, p. 9).

This document and Paul's comments confirm that policy in this period, whilst still mostly informal, local, and fledgling was the period where the general trends identified in chapter one were originated in policy. Framed around concepts that were particular to the time, the oil crisis and a particular vision of fitness as related to the growing importance of “aerobics”, these discourses may look different from today. Yet the core ideas of cycling as environmentally friendly, prudent about using oil resources, and healthy are ones that continue to play an important role today. The one discourse missing from this EPA document, and from the BABP document (1976), as well as the Massachusetts Bicentennial Commission's (1975) *A community guide to bikeway planning* is the role of cycling economically. Certainly cycling is discussed to cut costs in some of these documents, especially fuel costs in the face of the OPEC crisis, but the same rhetoric that is seen today regarding the positive economic impact of cycling is missing. These documents call for greater spending on cycling, mostly to support “the use of bicycles as a major mode of urban transportation, as it becomes more and more necessary to the continued good health of our cities” (Central Transportation Planning Staff, 1976, p. 7). However, this is in contrast to policy today that almost always positions cycling as part of the entrepreneurial approach to the economic health of a city as well. This period of policy development through the

1970's was “Following the social upheavals of the 1960s and early 1970s” (Semel and Sadovnik, 1995, p. 58). Thus although these “tensions between individualism and community were often resolved in favor of the individual” (Semel and Sadovnik, 1995, p. 58), this represented a time when the individualistic and economically orientated core of neoliberalism had not become codified in cycling policy, as is the case with many post-ISTEA documents.

Phase 2

This period of local, mostly advisory policy documents around cycling was supplanted by a phase in the 1990's of an increasing formality of cycling related policy documents, embedded with or surrounding governmental acts of law at the Federal, state and city levels. This period was highlighted by the *National Bicycling and Walking Study* (NBWS), commissioned by the US congress in 1994; The *Intermodal Surface Transportation Efficiency Act* (ISTEA), implemented by the US congress in 1991; The *Transportation Equity Act for the 21st Century* (TEA-21), enacted by the US congress in 1998; The *Massachusetts Statewide Bicycle Transportation Plan* issued in 1998; and the *Boston Bicycle Plan* as part of *Access Boston 2000-2010: Boston's citywide transportation plan* that was implemented in 2001. These policy documents directly supported the implementation of bylaws, or were acts of law, themselves. They included requirements for implementing certain infrastructural developments, determining funding structures, and outlining hierarchies of power within government at different levels. For instance the ISTEA had requirements that:

States are required to develop, for all areas of the State, transportation plans and programs which provide for the development of transportation facilities (including pedestrian walkways and bicycle transportation facilities) which will function as an intermodal State transportation system. A long-range plan for bicycle transportation and pedestrian walkways for appropriate areas of the State must be incorporated into the long-range transportation plan for the State (Sections 1025 and 1033) (U.S. Congress, 1991, p. 6).

This time was also overlapped with the continuation of the provision of local or private policy documents that continued a pattern from the previous phase. However, in this period these documents tended to have moved beyond previous iterations in that less was made about the need for the implementation of bicycling related infrastructure, but more was made about how to go about this implementation. It seems very much that these documents supported more municipalities to move towards the development of city bicycle master plans, or to come inline with the requirements of state and federal legislation. The *Pedestrian, Transit and Bicycling Workbook* is an example of such a document. Published in 1999 the workbook has as an objective means through which to create:

quality of life and place [] without creating a new community from the ground up. Incrementally.” where “The magic of walkable, neighborly places is a magic made of many things. Distances have to be small. Aesthetics and safety

issues must be attended to, and amenities help too (Pioneer Valley Planning Commission (Mass.), 1999, p. 1).

As such it is a:

package of tools that address the ingredients of walkable, bikeable, transit-oriented places. The intent is to provide a menu of ideas, something browse-able (Pioneer Valley Planning Commission (Mass.), 1999, p. 1).

So that where these sorts of policy documents previously were ground breaking and built out of an often small group of dedicated interests, during this formalization period these documents appear to be appealing more to the mainstream development of policy. It is not as much oriented around “should cycling be involved, but had shifted towards how can we implement this infrastructural consideration” (P. Jennings, personal communication, August 6 2013). The formalization of cycling into intermodal transportation acts meant more formalized expectations for state and municipal planning, specifically for cycling in the city. This period marks an expansion of federal policy, matched in Boston and Massachusetts by an enactment of the support for cycling into local policy and law. This may well seem antithetical to neoliberal imperatives to reduce government spending and minimizing government over-site (Lauermann and Davidson, 2013), however it is this phase that came to underpin later policy developments. As Schweppe (2001) states “ISTEA gave state and local governments greater flexibility in determining transportation solutions”

which allowed more local governments to include cycling as they sought reductions on transportation spending, and have expanded public-private partnerships in city transportation. Additionally it must be recognized that whilst the ISTEA and TEA21 meant greater funding for cycling it did not necessarily mean greater federal funding for transportation. Instead these acts simply put more forms of transportation into competition for funding by “instead of focusing on just highway transportation, ISTEA emphasized intermodalism – the seamless linking [and combined funding] of highway, rail, air, and marine transportation” (Schweppe, 2001, p. 2).

These policy adjustments from the federal to the state and municipal level re-oriented transportation funding, creating greater competition and giving more autonomy to local government in order to compete for federal and private funds. Amidst the “unravelling of the 1960s Great Society welfare accord and associated War on Poverty and now confronting the deindustrialisation of their maturing economies and the new times of Reaganomics and retrenchment of Federal aid and welfare” (Macleod and Jones, 2011, p. 2443) urban planning embraced policies to support investment in cycling that have provided the ground upon which cities in the next phase could alter transportation investment patterns. These intermodal acts at the federal level encouraged greater competition for funds, and although they demanded greater cycling policy and planning locally this in fact represented the beginning of a shift in investment away from expensive highway and mass transit investments, to the relatively cheap provision of cycling networks. Additionally this distribution of power to municipal governments in particular has paved the way for the plethora of

Public-private partnered (P3) programs that have proliferated in the most recent phase of policy and program development.

Phase 3

The phase of policy formalization in Boston was then superseded by the development of refined and re-issued documents for the city and state. This phase represented a the issuing of “Subsequent legislation [that] provides the funding, planning, and policy tools necessary to create more walkable and bicycle-friendly communities” (Federal Highway Administration, 2012) at the federal level. However with federal transportation legislation only receiving two further adjustments in the SAFETEA-LU and the MAP21, it seems little has changed in the federal approach. Funding has been re-stated for further fiscal years, but the federal stance on intermodal approaches and the distribution of power to lower levels of government seem to have remained. As Higashide (2012) discusses cycling under the SAFETEA-LU still “received only a tiny sliver of dedicated funds, which amounted to less than three percent of total road spending”, and with the re-iteration of federal policy in the MAP21 “that sliver gets tinier and less dedicated, with states getting broad leeway to transfer half of the funding to other programs” (p. 10). States and municipalities have greater autonomy to spend funds with each new federal act, and although financing of cycling has been expanded and embedded in policy it still represents a small slice of shrinking transportation budgets at all levels of government. Thus whilst policy and spending has expanded over the previous phase and this third phase, seemingly in tension with neoliberal logics, the particular structuring of this policy seems to have

supported shifts to greater privatization and relatively cheaper transportation investments, where cycling represents growing but still small amounts of government investments in street infrastructure and programs.

The development of the Boston Bike Network Plan (Boston Transportation Department, 2013a), which is a thirty-year network plan for cycling, has shown expansion upon and refinement of previous policy orientations towards cycling for the city of Boston in particular. The plan states that:

The Boston Bike Network Plan will help Boston Bikes broaden its reach by setting out an ambitious vision for a safe and inviting bicycle network that can then guide the work of all city departments, state agencies, and the public as they improve bicycle infrastructure in Boston (Boston Transportation Department, 2013a, p.3).

It is a plan that incorporates planning directives for all departments and other stakeholders, for expanding and improving cycling facilities. Indeed there is a clearer integration and presence of cycling in the transportation plan for the city. Cycling planning is no longer considered a special or separate part of the transportation planning process, but is embedded in this increasing orientation to 'Complete Streets' design and planning. The Boston Complete Streets Guidelines were first implemented in 2009 (although continued revisions have taken place) and speak to the expanded, refined, and increasingly integrated planning of streets for cycling. The vision of complete streets states its aims as:

Boston's Complete Streets initiative aims to improve the quality of life in Boston by creating streets that are both great places to live and sustainable transportation networks. The Complete Streets approach places pedestrians, bicyclists, and transit users on equal footing with motor vehicle users, and embraces innovative designs and technologies to address climate change and promote active healthy communities (Boston Transportation Department, 2013b, p. xii).

The document resonates many of the general themes identified in chapter one, and which were initiated in policy in the first phase of development. This document includes discourses of cycling's positive impacts for public health, environment, safety, and the development of an inviting city image for tourists and in-migrants are central. In particular the economic benefits of cycling are mentioned at length in the Boston Bike Network Plan (Boston Transportation Department, 2013a) where they state that:

The bicycle will have a positive effect on Bostonians' every day lives across a range of areas from the economy to public health:

- New jobs. In 2012, two international bike leaders opened offices in Boston and six other small bicycle related businesses were launched. Between 2007 and 2012, local businesses added 650 new jobs related to the bicycle industry.

- Retail success in proximity to bicycle facilities. Research in Boston, Minneapolis, and Washington D.C. has documented increased sales for local businesses adjacent to bikeshare stations. In New York, sales receipts increased by 50 percent along 8th and 9th Avenues following the installation of cycle tracks on these streets.
- Increased property values. A 2008 study estimated a \$5,500 greater sales price for homes located along bicycle boulevards (or neighborways). Commercial rents along new bicycle infrastructure in New York jumped 71 percent in one year.
- Reduction in health care costs. International studies have shown that every \$1.50 spent on bicycling that increased physical activity can result in over \$6.00 in savings in health care expenditures.
- Congestion relief. More trips by bicycle will relieve congestion on city streets and transit systems. This can have a big impact on reducing neighborhood traffic and overcrowding on the T.
- Reduction in facility maintenance. Bicycles trips cause less wear and tear on infrastructure than motor vehicles (p. 12)

The economic benefits are believed to be multiple, not only in bringing in directly related bicycle businesses, but also as people who cycle spend more money in the local area, and through this secondary system as house prices are raised surrounding this infrastructure. Again little attention is paid here to the potential negative displacement effects of this gentrifying effect as cycling underpins an

increasing orientation towards supporting growth through attracting a creative class to the city (Pratt, 2011). The celebrated outcomes of this network expansion are predominantly economically oriented, which is not surprising within a broad shift to urban entrepreneurialism (Harvey, 2001), where cities consider investing through a monetary cost-benefit model. This serves to further compound some groups feelings that this network, cycling, and the amenities for a creative city more generally, are not aimed at servicing a broad range of citizens in US cities (Pratt, 2011). Instead it is more focused around catering for and “attracting a creative class of professionals, technologists, culture industry movers and hipster entrepreneurs” back into the city (Macleod and Jones, 2011, p. 2454). In this example the positive public health benefits are explained in economic terms, where health is a concern only as it intersects with economic considerations. As the Boston Complete Streets Guidelines (Boston Transportation Department, 2013b) document goes on to state:

Streets with bicycle lanes and cycle tracks create a welcoming, friendlier and safer city. Boston has installed 60 miles of bicycle facilities since 2009 with a goal of installing 20 miles per year for the future (p. xvii).

This statement ties into similar ideas around developing Boston as bicycle-friendly to welcome new residents and tourist into the city, whilst also making the city 'safer', relating cycling to the regeneration of urban spaces. Based on this logic in the first half of the quote, it normalizes the impacts of expansion and therefore gives clear reason for the further development of the network. These stated impacts, and

clear goals for growing the system has also led to plans for clear routes to funding cycling infrastructure:

Each year, multiple agencies and departments and other actors will dedicate funds to construct a portion of the network. These various actors will draw from many sources including budgets from annual repair and maintenance, discrete capital projects, federally funded projects, and private investment (Boston Transportation Department, 2013a, p. 12).

The plan does not define monetary figures, so as to maintain room for adjustments to the funding plans, but sets expectations for integrating funding sources from multiple entities. What is also stated here is an open expectation to involve non-governmental actors in the funding of the system, a privatization to funding that is in keeping with the continued logics of urban neoliberal governance (Peck, 2013).

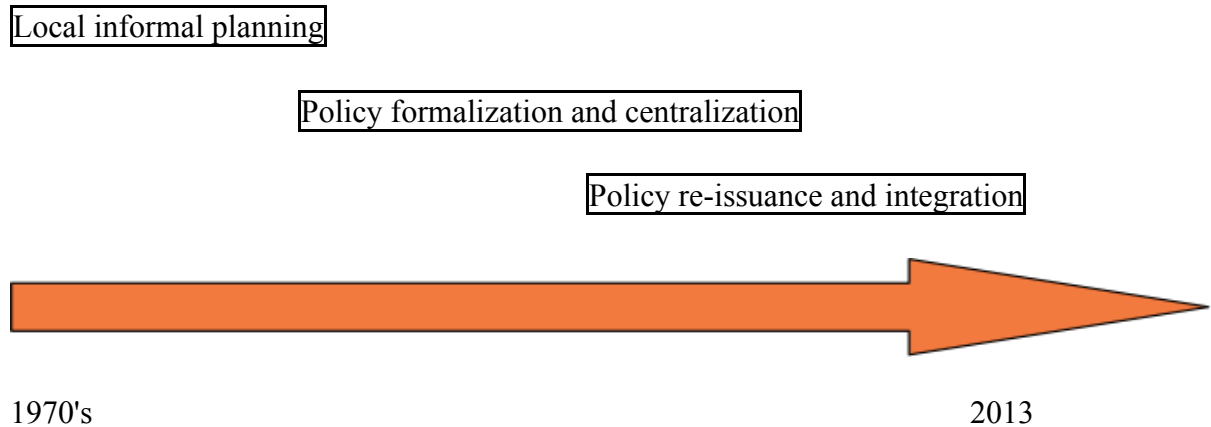
In addition these third phase policy documents and policy makers have also brought in the Hubway Bike share program as a central part of how the city is supporting cycling as integral to urban mobility. This program, is a hallmark of global city status in relation to transportation development, and has been utilized in projecting the cities image as 'livable'. Recently “Bike sharing programs, sometimes called city bike programs, have grown in popularity throughout the world” (Pucher, Dill, and Handy, 2009, p. 116) starting with early schemes in La Rochelle, France and the ByCylken in Copenhagen. Since then more recognizable schemes to what is most common in U.S. cities today started in the mid to late 2000's with systems like

BIXI in Montreal, which has since provided bikes and stations to systems such as the Capital Bikeshare in Washington DC. As such the Hubway is emblematic of the approach to the governance of Boston currently, and in particular its orientation to cycling. As a P3 project the Hubway has reduced government investment and political oversight of the system, in keeping with neoliberal tendencies towards smaller government. At the same time the focus on creating the Hubway has enhanced Boston's ability to compete for capital where the bikeshare has become a hallmark of creative cities “perceived to be attractive to talent, which in turn attracts high-tech companies and stimulates regional economic growth” (Lawton et al, 2013, p. 48).

Modeling three phases of cycling policy

Over the period since the 1970's Boston has gone through three identifiable phases of policy development. Each has been reflective of the interaction of general trends in cycling policy nationally, the rise of a neoliberal doctrine for urban governance, and various particularities of the city and its history with cycling. Over this time cycling policy for the city has become increasingly formalized, following a pattern of expansion and refinement at all levels of government. Yet this has not been in contradiction to neoliberal and 'creative city' logics in governance. Rather policy has seemingly increasingly centralized cycling within the Boston's re-orientation towards general patterns of urban retrenchment, whilst also aiding in orienting the investment that still exists towards providing “consumption-based amenities” and progressive infrastructures to a creative class (Lawton et al, 2013, p. 49). Thus the

city draws on cycling as part of the broader “transformation of public space in a fashion that is attractive to middle class consumption patterns and the tourist industry” (Lawton et al, 2013, p. 49). Resultantly these phases have been as such:



(Figure 2. Phases of cycling policy development in Boston)

My interview with Paul Jennings, a bicycle advocate in the city of Boston, confirmed much of this periodization that I had mapped out in the policy documents from a federal, state and municipal level. I asked Paul about my analysis of the policy, and he confirmed much of what I had seen:

Interviewer: in terms of the policy it is very interesting the lineage of the policy that you have outlined and I have spent a lot of time just going through the archives, going through policy documents and it seems very much to me that there has been three phases in the Boston area in policy as that relates to

the federal policy in that in the 70's and 80's there were a lot of local and informal, within municipalities and across a small group of municipalities putting in place plans and advisory policy. This was followed by a second phase in the 90's where there seemed to be a lot more formalization of that... so putting it into bike plans for cities and states, and that came along with that federal impetus and support from the ISTEA...

Paul: ...transportation enhancements at the federal level...

Interviewer: ... right and then kind of post that in the mid to late 2000's there has been a real and continual refinement in the Boston area, working to refine what was in place in the 90's... do those kind of refining and more authoritative approach to what is required for cycling taken place?

Paul: Yea I think that is a reasonable way to look at it. [my advocacy group] actually started in the 70's as the [previously named, city based advocacy group]... we have a great history in T-shirts about the organization...

Interviewer: Yea those are some great T-shirts [laughing]

Paul: erm... [information redacted for confidentiality]... erm... and yea I think it... in the 70's it was stemming from a kind of new found environmental consciousness and the oil embargo...

Interviewer: Yea that seemed like a real impetus...

Paul: Yea and I think in the 90's, as you say, people realized that the grass roots effort alone was not enough so they needed to codify and formalize, but from my perspective not a lot of that had much practical effect until the 2000's

Once again this periodization does not define policy development during these temporal eras. There are policy documents that arise in each phase that do not fit with the patterns I have identified. As such, despite there being “notable pedestrian and bicycling improvements in the absence of [formalized government bicycle master] plans”, there is an identifiable general pattern that underpins the “recent momentum toward developing and implementing these [master] plans” (Evenson et al, 2011, p. S275) for many municipalities. The master plans, and their refinement currently, have highlighted a continuation of codifying cycling as central to the cities approach to urban mobility. This increasing codification, expansion, and refinement may seem to be in tension with what many scholars have identified as a increasing expectation for urban entrepreneurialism (Harvey, 2001), and an attendant shift to neoliberal forms of urban governance (Hackworth, 2007; Peck and Tickell, 2002). However, the particular language of federal transportation policy, and the reaction of Boston to this re-distribution of power to local government, placing a primacy on the partially privatized Hubway system and network expansion into neighborhoods that were on the precipice of gentrification in service of a creative class (Lawton et al, 2013), demonstrates that in fact cycling policy has been folded into the governance of a 'creative neoliberal city'.

Cycling in Boston in many ways demonstrates it is one of “many cities [that] have taken up “urban revitalization” as a theme of urban policy making and have begun various actions with the goal to become creative cities” (Okano and Samson, 2010, p. S10). Cycling does not always conform to the economically driven forms of urban governance that dominate today, and has the potential to play a part in the city

outside of the neoliberal model (Posey, 2011). However, its policy has certainly been embraced, and designed in ways that are far from antithetical to current approaches of low cost, high return urban revitalization focused on creating a space to service creative class citizens and their industries. For Boston cycling could underpin inclusive access to the city, and provide a common point of entry into mobility structures. Instead currently cycling policy and the integration of cycling into the cities approach to urban governance appears oriented to a greater extent to generating capital directly, and indirectly underpinning creative urban gentrification that rather does more to create urban inequalities, social, and economic disparities.

The development of the Hubway

The development of the 'Hubway', a Boston metro area bike share or city bike program, has mirrored the expansion of similar programs in major cities globally. In the U.S. this has gained particular traction within the last five to ten years, marked by major cities such as Washington DC, New York, San Francisco and Chicago all having a system in place, the latter three of which were implemented since 2012. It is a shift to the provision of bicycles as “availability of a bicycle in a household is the strongest single predictor of bicycling for transportation” (Pucher, Dill, and Handy, 2009, p. 116). This is seen as especially important for cities as there is belief that urban living poses some prominent barriers to bicycle ownership (Pucher, Dill, and Handy, 2009). Yet despite this oft-recited positive reasoning for the creation of bike share programs, there are some considerable barriers to use for much of the population. The expansion patterns for bicycle stations tend to primarily focus on

centralized city spaces, as well as sites where cycling mode share is already high. As such these bike share programs tend to be placed in areas that primarily serve those who are early adopters to cycling or short term tourist use. Indeed these are the most easily accessible groups, and often those with the most disposable incomes to pay the relatively high short-term fees or to afford a year's membership. This is an important consideration for bike share programs as they often semi-private entities. As Paul Jennings discussed with me:

these systems have to have a center somewhere, and they have to grow from that center, and they need to establish this system where you think its going to be most successful or else you wont be able to expand it” and this means that it is “going to be a while before Hubway can reach the outlying [poorer] neighborhoods in the city (P. Jennings, personal communication, August 6 2013).

There is no common structure for bike share programs. Some have strong corporate partnerships, with varying degrees of oversight, whilst others have no direct sponsorship. London has Barclays Bank as a major sponsor, New York has Citi Bank and Boston has New Balance. However on the other hand Washington DC and Chicago have no main sponsor for the program. Indeed in an interview one participant mentioned that the DC system “was largely government funded, and government placed” (J. Fredricks, personal communication, July 3 2013). Some of the bike share programs utilize a third party for running the bike share, Alta bike share

are a large operations company in the U.S. and Serco Consulting currently run the London Barclays cycle hire scheme. These varying and complex relations between municipalities, hire scheme operators, corporate sponsors and the companies that manufacture the systems can have differing outcomes on the way the schemes develop. Additionally financial arrangements are equally complex as sponsorship monies and user-generated incomes are distributed in relatively unique agreements. What this ultimately means is that the schemes are not only designed and operated with the dominant mission for these cycle hire schemes being about providing more access to a wider population. The inclusion of multiple private entities means that the intentions for the Hubway in the city includes the interests of purely profit orientated stakeholders. This is not to say that cycle-hire systems cannot cater to a broad segment of the urban population, but when profit is central focus of the system, developed as a P3, catering to affluent can dominate how the system is designed and integrated into the city (Newman, 2013). Certainly there is a limiting effect of station locations within cities, demonstrating that cycle hire does not create a borderless city, with borders being very much marked by station location. However, another major barrier to use comes through the means of access. To become a member of these programs, in almost every iteration, and certainly within the U.S., you are required to use a credit card. For many this is not an issue, and serves as a straightforward means of tracking users and providing monetary insurance for the scheme operators. Yet for many lower-working class populations credit cards are not obtainable within a financial system that pathologizes monetary instability. As Baradaran (2013) states lower class populations are often excluded from traditional banks, being left with

'fringe banks' that “have high costs for the poor and further dislocate them from traditional banking institutions by preventing them from building up a credit history” (p. 486). It becomes a record that is often hard to erase, and therefore long term exclusion from the credit system is relatively common.

What can be seen with the growth of cycle hire schemes, even as bikeshare schemes are cast as being positive and more inclusive transportation options, is a reality of barriers and private economic interests. What we are seeing in the U.S. can be seen to be similar to the situation Aldred (2012) describes in the UK where “Mirroring the growing role for private business and third sector organisations, policy has increasingly focused on the responsibilities of private citizens as service users, with policy rhetoric highlighting a move away from the ‘passive’ citizen” (p. 96). The provision of a resource shifts the expectation to adopt 'active transportation' practices on to the individual, whilst seeming to be irrespective of the significant barriers to use that may exist. The cycle hire system directly services the relatively wealthy consumer-citizen, but may do little to service those that may benefit most from these systems. Despite Boston's claims of the Hubway representing a leap forward in the cities transportation systems, it may function more in “decaying neighbourhood cohesiveness” (Tretter, 2013, p. 2225) as they attract in affluent creative class citizens, displacing lower class communities, and serve the “vested interests of real estate developers and high-income professionals” (Sacco et al, 2013, p. 5). When bundled together with the complicated interests and relations of multiple private entities, these schemes may more readily serve tourists and middle to upper middle class commuters who already are cycling around the city. In serving these groups

first, returns on investments are more guaranteed. Certainly urban government retrenchment, and common sense approaches to municipal governance that relies on private partnerships has impacted upon the approach to cycle sharing in its recent boom within U.S. cities. However, the sentiment to provide a healthy and environmentally friendly form of transport to more of the population of a city is not lost. As Boston is moving towards a second phase of expansion with the program, station locations are increasingly becoming present in poorer neighborhoods. Paul Jennings expressed the value that the Hubway could have for lower SES communities, in that it “could be a really vital transportation link for them” (P. Jennings, personal communication, August 6 2013). Yet he also recognized that this is not necessarily a priority for the city, and even if it was there exists “a tension between where ALTA wants to put stations and where the city of Boston wants to put stations” (P. Jennings, personal communication, August 6 2013). As for barriers to membership, Boston does provide five-dollar yearly membership, and reduced usage rates for those that qualify in the metro area.

The Hubway is a prime example of cycling for the city of Boston. It demonstrates the changes in policy and approaches to governance in the city over time that would lead to the embedding public and privately partnered system as the focal point of cycling infrastructure in the city. It also demonstrates the tensions that arise out of developing a bikeshare program that has the potential to service the mobility issues of marginalized communities in the city, but that is bound to the interests of private stakeholders. The system has potential, but as with the rest of the expansion of cycling infrastructure in urban settings it appears to function more

effectively as an amenity to attract and service a creative class, than servicing the working poor already in the city (Pratt, 2011). Thus it appears that the Hubway is at the pinnacle of designing “a particular city built for a particular audience, one that makes it easier for the privileged group’s quality of life, and makes it implicitly worse for others” (Pratt, 2011, p. 127). Changes in federal policy towards intermodal transportation models meant that federal funding was accessible as “Hubway stations were to be built into the sites of transit stations” (P. Jennings, personal communication, August 6 2013). However, the freedom afforded to local government by these federal policy changes also meant that the city could outsource the additional financial backing for building the system to a main sponsor, New Balance, and could turn over operations to private company named ALTA who have “taken on the financial risk of running the system” (P. Jennings, personal communication, August 6 2013). The Hubway has been supported by changes in federal policy and expansions in local policy, thus the creation of this 'creative neoliberal' program par excellence has not been in tension, but actively facilitated by the shifts in policy outlined in this chapter.

Shaping the political cycle

The long term Boston Mayor has set a precedent for a pro cycling political landscape in the city. As can be seen in various quotes previously mentioned, the former Mayor had made noticeable strides to increase cycling, and cycling specific infrastructure in the city. As Jane Morhugh, a city employee mentioned in an interview:

Mayor Menino is obviously so dedicated to this [cycling], which is why he brought [name redacted for confidentiality] on... and... we have all these wonderful programs for cyclists all across the city (Jane Morhugh, 2013, Interview transcription).

The city is in support of a program and network that services its current entrepreneurial goals (Erie et al, 2010; Vivant, 2013). Yet what has also become clear is that the success of the system in generating capital and attracting a 'creative' middle and upper class to the city has in turned created a public demand for continued expansion and investment. This has meant that in the recent mayoral election almost all of the candidates took pro-cycling stances. Some made modest claims for expansion of the cycling infrastructure, but all at least showed support for the system as it stands, as well as its gradual expansion. In a report of a pre-election forum, the Boston Streets organization discussed that:

Eight of the twelve candidates for Boston mayor gathered tonight at the Public Library for a forum on Transportation and Livable Communities. Each tripped over himself to proclaim his support for cycle tracks and protected bicycle facilities. The boisterous crowd cheered as candidates named their favorite neighborhoods and identified top transportation priorities, from changing our auto-oriented culture to embarking on comprehensive planning for the city (Boston Streets, 2013).

This group enthusiasm from the candidates was confirmed as the Boston globe reported on the event stating:

At a Tuesday night candidate's forum at the Boston Public Library on transportation and livable streets, more than 450 people filled an auditorium — and more were turned away from the overflow room — to watch eight of the mayoral race's 12 candidates spar on issues ranging from the Massachusetts Bay Transportation Authority, minimum parking requirements, Seaport District traffic, speed limits, bus lanes, the state's transportation finance plan, *and, of course, the oft-discussed separated bike facility known as the "cycle track," perhaps the most popular topic of the night* (Globe Staff, 2013; Emphasis added).

Clearly cycling became a major element of political campaigning for most of the candidates, and became more essential in what came to be a very close race between Martin Walsh and John Connolly. As the Boston Cyclists Union (2013) commented:

In an election this close, the bike vote can make a difference. Somewhere in the range of 14 percent of Boston's voters are still trying to define the differences between the candidates in time for this Tuesday's mayoral election. With the candidates now tied, or close, depending on which polls

you look at, this 14 percent could swing the vote either way (Emphasis added).

It seems that the consideration of cycling generally, and as a central part of a transportation plan, is increasingly important for successful political campaigns in the US at the municipal level. As Pucher Dill and Handy (2009) note:

Perhaps due to the increasing evidence of the health benefits of bicycling, many government agencies and public health organizations have explicitly advocated more bicycling as a way to improve individual health as well as reduce air pollution, carbon emissions, congestion, noise, traffic dangers, and other harmful impacts of car use (p. s106).

Therefore to not be inline with this increasingly expected support of cycling within government, is to be going against the political tide. Boston is a special case in which the role of cycling for the political process may be accentuated, yet it does point to the broader direction of political consideration for cycling. This in turn may have effects upon the direction we can expect policy and urban planning to continue. This is not to say that all policy documents will now be pro-cycling, or that they will bring about changes to the built environment. However, as these systems are broadly accepted to address environmental and health issues, and where they do bring in creative industries as well as lead processes of gentrifying displacement those that come to reside in the city may demand a greater expansion of cycling networks,

programs, and policy.

Conclusion

Boston has gone through three broad changes in the way cycling is positioned in the city, leading to a greater presence and integration of cycling policy, as is the case with many U.S. municipalities. Certainly the impetus for the second phase of policy development, which in turn has underpinned the third phase of expansion and refinement, was at a federal level, impacting many cities around the country. Yet it is the particular history that Boston has had with cycling, alongside a multitude of factors specific to the city that has meant these federal shifts in policy, and a growing dominance of neoliberal logics to urban governance has resulted in an advanced formulation of cycling policy. The history of cycling in Boston has been marked by constant change, but this is often circular or featuring large schisms between periods. Contemporaneously we see a large amount of well refined, and often well enforced policy documents, but the continuation of this is not guaranteed. Certainly the political process has increasingly had to be responsive to the cycling community, and especially their advocacy groups, following the precedent set by former Mayor Menino. Yet what has become clear is that the complex way through which policy, programs and infrastructural expansion come to be implemented means that the continuation of this refinement and enforcement is not inevitable. Cycling is embraced within broad approaches to fostering the growth of a creative, yet at the same time frugal with public spending. However it cannot solve all the contradictions and incongruities of neoliberalism, and “It is this ‘incompleteness’ of the neoliberal

subject that opens space for alternative repertoires”, alternative ways in which cycling can function for the city (Newman, 2013, p. 4).

What has become the case in Boston is that planning for cycling has very much become attuned with neoliberal logics and the idea of new urban creative economies (Vivant, 2013). Rather than being an impediment to this overarching trend in policy the changes in federal policy have come to underpin these policy developments. The initial reorganization of transportation policy towards intermodal planning, and the serious consideration of the issues of pollution at this level of national policy making has opened up what are new funds for which cycling can compete, even if this represents an broader contraction of government spending. However, it is also that this federal policy has been decidedly small in its scale and mandatory requirements has meant that states and municipalities have been given a lot of freedom in meeting these policy requirements. Thus this “vertical diffusion of power away from national governments as an outcome of the broader shift to neoliberalism” (Harmes, 2006, p. 726) has been fundamental to the increasingly neoliberal approach to urban governance, dictated more so than ever at smaller scales of government. The newest policy documents for the city and state fit within a broad shift to urban entrepreneurialism, focusing increasingly on economic benefits and effects, as well as drawing on a greater integration of public processes with private entities. In turn this has created the policy context within which “Cities, redefining their strategic objectives in a competitive market, have become entrepreneurs of their own development” where they are seeking to “attract capital and investors to develop large-scale urban projects, while knowingly facing the financial liabilities of such

uncertain ventures” (Vivant, 2013, p. 57). The specific approach to integrating cycling into Boston over time has reflected these patterns. Federal policy has provided greater power and resources to cities to pursue cycling as part of their neoliberal and creative agendas.

Cycling has been utilized to both grow Boston's ability to compete in a global urban marketplace, but also has been included in the creation of creative economy to drive economic regeneration. From the outside this seems like a well planned and orchestrated re-formation of the city, and cycling's role for what it has become, yet it is important to recognize that throughout this analysis I have collected information that demonstrates that these overarching trends often break down. Cycling continues to have the potential to disrupt these neoliberal tendencies that are present in visions of how Boston should be governed. Certainly as Posey (2011) suggests alternative economic and political agendas could “potentially transcend the failures of neoliberalism” (p. 304), and cycling has the potential to be at the base of many of these. Cycling forces the city to be experienced at more local scales, so that where it is not overly romanticized or co-opted, it could “help transcend boom/bust cycles and widening inequality” (Posey, 2011, p. 310).

Chapter 3: Mapping the associations of Baltimore – approaching the urban as assemblage.

Introduction

In this chapter I have engaged with a discussion of the city as an assemblage, in which “cities are [understood as] assemblages of people, networks, organizations, as well as of a variety of infrastructural components, from buildings and streets to conduits for matter and energy flows” (DeLanda, 2006, p. 6). Whilst the previous chapter mapped out the shifts in cycling policy as they related to broader political shifts and changes in the dominant logics of urban governance, in this chapter I have explored the ways in which the community engages and responds to these shifts. Certainly cycling has fit within the neoliberal urban project, oriented around “polarizing labour and housing markets, property and market-led development, retrenched public services and social programming, and accelerating intercity competition for jobs, investment, and assets” (Peck, 2009, p. 159). However, through conceptualizing the urban as assemblage I have sought to speak to the complex development of the urban, in which neoliberal logics break down, but also involve “local actors who, in seeking to mediate or mitigate the impact of neoliberal policies, generate innovations that may in turn be appropriated by neoliberal projects seeking to configure alternatives within the dominant” (Newman, 2013, p. 10). The city is “a stuttering but nevertheless vocal potentiality”, and therefore a space of both control and possibility” where “the constant hum of the everyday and prosaic web of

practices that makes the city into such a routinely frenetic place” (Amin and Thrift, 2004, p. 232).

Thus the neoliberal city continues to exist, but it is also reached in non-linear fashions, or sometimes fails to materialize. The assemblage provides the framework through which to address the messiness in the ways policy and dominant logics of governance are experienced. As Thoburn (2007) suggests “For Deleuze and Guattari, all social formations are heterogeneous arrangements of material and immaterial forces – matter, images, desires, languages, technologies – that function, against any material/ideal or base/superstructure dichotomies” (p. 82), and the city is no different. The city as an assemblage is not “integrated in a unitary machine” but is instead a network of associations that “resonate together, maintaining coherence over time to different degrees” (Thoburn, 2007, p. 82).

Many different actors make up the city, which is especially the case with the cycling community in Baltimore, as it is influenced by an aggressive experimentation with neoliberal revanchist policies (Ponzini and Rossi, 2010). Thus expected relations and tensions between a retrenching municipal government and an underserved urban majority can be projected on to the situation, and arise throughout my analysis. Yet I have also sought to explore the complex web of relations that make up cycling in Baltimore, developing an analysis that is capable of conceptualizing the cycling community as both challenging dominant race and gender inflected policies of neoliberal governance, but also being shaped by them. As Newman (2013) suggests “The current climate of cuts, austerity and state retrenchment has intensified a focus on neoliberalism”, but in thinking through the city as assemblage I am able to add

another critical layer of analysis of the “contradictory trends and tendencies: for example, the simultaneous concentration and dispersal of governmental power” that are at the heart of the city (Newman, 2013, p. 1). Thus this chapter engages with the city as an assemblage in which it is understood that “the parts of an assemblage do not form a seamless whole” (DeLanda, 2006, p. 4). It is an exploration of the complexity of the city, knowing that simple stories cannot effectively convey the messiness of events and practices within the urban.

The chapter recognizes neoliberal and creative processes in the city as being produced out of complex networks of associations. However, this is also the point at which I have explored that it is also the necessary ability of neoliberalism to draw on multiple actors and sites within the urban setting, engaging “different temporal and spatial repertoires” that leaves the gaps, and opens up the possibilities for associations that are unexpected (Newman, 2013, p. 4). It is the incompleteness of neoliberalism, always flexible to new sites of accumulation, supporting the co-option of new aspects of society into the market system, that assemblage thinking is acutely attuned to. In this way “thinking with assemblage is... about the play between stability and change, order and disruption” (McFarlane and Anderson, 2011, p. 162). It is used here to explore where neoliberal policy has very real effects, but also where it is a product of, and has outcomes that cannot be simply reduced to a function of neoliberal or creative visions of urban governance. As will become clear throughout this chapter, policy is only one element in a network.

To understand the complex impacts that cycling has had I have gone beyond the textual and spent time in the community exploring the associations and

articulations that underpin how cycling has been experienced in Baltimore. It is a task of asking how multiple actors, policies, and projects “co-exist and how contradictions between them are resolved in particular sites at specific moments” (Newman, 2013, p. 4). I spent time at multiple events across a three month period in the city in 2013, attending informal events of different scales, regular government ran community events, a new event in the cities Parks and Recreation departments calendar, as well as carrying out several interviews, and general observation riding through the city. I have drawn on information from all of these experiences, whilst integrating information from public and new media sites and municipal policy information. However, as a central theme in this chapter I have drawn on my experiences with a central event in the local cycling community, the Baltimore Bike Party (BBP) held in June 2013.

This approach to the city is taken up not to deny the very real moments of power, privilege, and marginalization that underpin the city, but is an attempt to embrace cities as “being wholes whose properties emerge from the interactions between parts” (DeLanda, 2006, p. 5), so as to deny a conception of urban governance as totalizing. It forces a greater attention to the details of ordinary urban life, and a ready comfort with those surprising moments of being in an urban setting, rather than a need to make sense of them within a framing where “Neoliberalism seems to be everywhere” (Peck and Tickell, 2002, p. 380), and dictates everything. Indeed the neoliberal doctrine relies on the entrepreneurialism of governments, capital, and individuals, and thus requires a certain amount of freedom within the system. Thus it is this neoliberal governance from a distance that in part means

cycling's integration in U.S. cities can serve to both confirm and challenge dominant neoliberal logics (Rose-Redwood, 2006).

Certainly the “Assemblage is just one of a wide range of theoretical tools Cultural Studies has at its disposal to acknowledge the specificity of every particular instance of participation and its mesh of attachments to and detachments from economy, intimacy and community” (Driscoll & Gregg, 2011, p. 578). Yet, as will become clear the particular theoretical intricacies embedded in the conception of the assemblage prove to be specifically suited to an analysis of the city which “allows us to overcome the easy analytical dichotomies” that studies of the urban are sometimes reduced to (McCann et al, 2013, p. 584). It is acutely oriented towards grasping with the messy, complex, and layered nature of the urban, and grasping where the cycling community is positioned within it (Amin and Thrift, 2002). Ultimately “With luck, assemblages, sharply conceived, should open up new questions, as well as new forms of engagement, not merely tell us what we have known more or less all along” (Allen, 2011, p. 156). It will provide a novel means through which to explore how cycling policy and neoliberal forms of governance are lived, whilst refusing to reduce the associations that define these experiences into the “the necessity of confirming the capital/labour, bourgeoisie/proletariat dynamic, and the binary ontology driving historical materialism” (Legg, 2011, p. 129).

Contextualizing Baltimore: uncertainties, neoliberal creativity, and cycling

Baltimore has experienced elongated processes of deindustrialization and urban flight, which was heavily influenced by race related migration from the south

(Harvey, 2001). In response the city has been involved in several, and repeated attempts at revitalization. There has been large investment in the spectacularized inner harbor, where in the 1980's "Baltimore was the model for waterfront redevelopment, a city with a waterfront and a port that was being talked and written about as having been successful" (Cook and Ward, 2012, p. 782). In addition the various points of mass redistribution of the cities population has meant that many ex-urban communities have also become economic centers. This uneven investment and the dispersion of the cities main populace between high end downtown apartment living, and exurban settlements along the cities beltway has left large swaths of the city relatively empty. Vicino (2008) discusses that "Between 1970 and 2000, the outer suburbs flourished while the first-tier suburbs declined" in the Baltimore region (p. 558). The inability of neighborhoods on the edge of the city center to a "attract new population", whilst experiencing "patterns of White flight", resulted in a hollowing out of many city and county communities (Vicino, 2008, p. 556). Harvey (2001) notes in particular that:

Over the last twenty-five years, Baltimore has lost a fifth of its population, more than half of its white population, and a hard to enumerate but very large proportion of its middle class, white and black (p. 140).

This pattern of urban structuring in Baltimore may well be a microcosm of the continuing re-formation of many American cities that have also seen economic "downturns and 'white flight'" to "edge cities" (Burke and Bonham, 2010, p. 273).

Yet “Baltimore can be considered an emblematic outgrowth of the forces and processes that transformed cities under the conditions of postmodernity” (Silk and Andrews, 2006, p. 316). The cities uneven investments has meant that the growth of a “spectacularized urban space only reveals part of the story” of the city (Silk and Andrews, 2006, p. 316). This process of regeneration of the city center continues through yet another iteration under Mayor Rawlings-Blake, highlighted recently by events such as the Grand Prix (Friedman et al, 2012) and infrastructural redevelopment projects such as Harbor Point (Warren, 2013), as well as most interestingly for this project the state grant funded 'Baltimore City Downtown Bike Network' (MDOT, 2013) which is still “conditional pending development of satisfactory project scopes and agreement terms” (p. 1). Yet still many neighborhoods just beyond the city center still see low-income, poor housing stock, and general signs of decline as a result of a program of redevelopment that “appears not to be concerned with the issues of social inclusion and life-chance provision that are most relevant in socially deprived areas” (Ponzini and Rossi, 2010, p. 1039). This pattern is not mapped out here to suggest these city spaces are empty shells of desolation, but it highlights the dominant uneven program of government led investment that has characterized Baltimore over the last decade at least.

More recently the city government has turned its long history of relying on public-private partnered investments towards “the enhancing of the creative and cultural economy” in order to support “urban growth and larger economic development, which remain the driving-forces of American urban politics” (Ponzini and Rossi, 2010, p. 1042). Investments in spectacular events, creative industries, and

the amenities to service a desired 'creative class' have dominated Baltimore's approach to continued revitalization of the city where "Baltimore's resuscitation has been grounded in a turn to the cultural economy" (Silk and Andrews, 2011, p. 440). As Silk and Andrews (2011) go on to discuss "Baltimore's local policy initiatives, popular representations and place promotions" have often been "more symbolic and rhetorical than material and concrete" having been constructed in order to "seduce citizens/consumers/tourists" (p. 434) rather than to inclusively serve the pressing needs of the whole city. Indeed this shift from the managerialism of distributing resources, to a more entrepreneurial role of government as it focuses primarily on attracting investment has defined the shift in urban political and economic structuring in the city (Harvey, 2001). This has meant that:

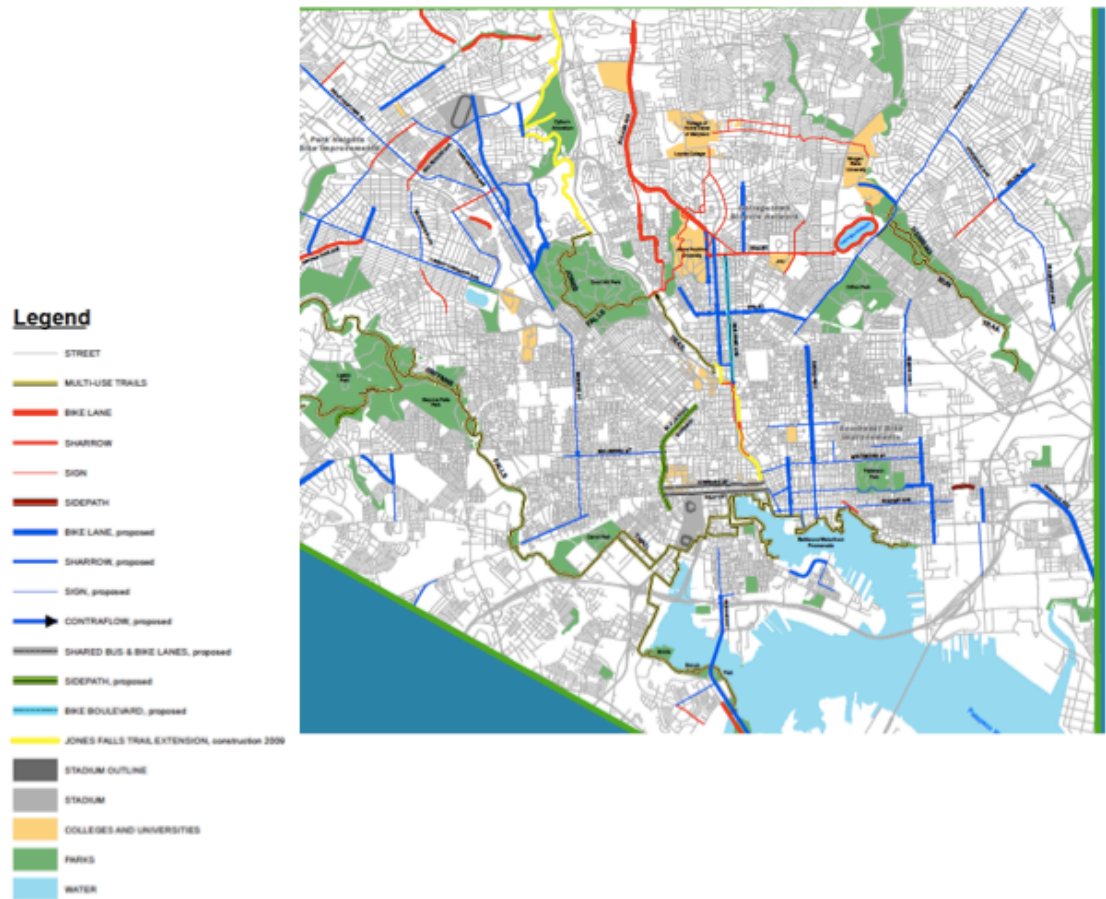
Baltimore's local government has found itself to be partially freed of a host of responsibilities relating to the implementation of regeneration programmes and projects, a trend which has become customary in contemporary cities in the subsequent years. Such responsibilities have been devolved to non-public or quasi-public actors along the lines of the conventional pattern of 'neo-liberal urbanism' (Ponzini and Rossi, 2010, p. 1045).

What this suggests is that where the city government has had influence on the city, it has been through the organization and supporting of private investment patterns, creating attractive spaces, policies, and programs for bringing capital into the city. In the creative city this has been expressed through various initiatives, such

as the 'Creative Baltimore Initiative', developed under Mayor O'Malley whom "embraced a role as promoter of a creative class policy in Baltimore, a city that appeared to be a fertile ground for the experimentation of this policy" (Ponzini and Rossi, 2010, p. 1046). However, although the concerted efforts to revitalize Baltimore have continued into the era of Mayor Rawlings-Blake, "A broader view of Baltimore shows that more than a half-century of entrepreneurial policies has done little to slow Baltimore's overall decline" (Friedman et al, 2012, p. 210). The municipal governments ability to effect widespread change in the city has seemed limited as it moves "closer to a hybrid public-private amalgam of co-funding, sponsorship and volunteering" (Pratt and Hutton, 2013, p. 92). Instead policies, programs, and infrastructural redevelopment has appeared to be incoherent, uneven, and limited for the city, whilst having a strong effect in normalizing a program of reduced government responsibility and a necessary shift to private and volunteer responses to city events and issues.

Baltimore has been part of a common pattern where "Modernism and functionalism effected urban planning in many cities and led to the discrimination against cyclists in the infrastructure" (Koglin, 2011, p. 225). Response to this 'discrimination' in transportation infrastructure and policies has only recently come to be addressed through investment into cycling in Baltimore. The introduction of a Bike Master Plan took place in 2006, and still remains the central document for the development of cycling in the city. In comparison, Boston introduced a centralized formal cycling policy document earlier, during the 1990's, and is in continued refinement of these policy documents with the release of an updated network plan in

2013. Baltimore's approach to expanding infrastructure and policy regarding cycling still faces many issues. Thus while Baltimore, and the state, have shown greater integration of cycling into the cities spaces and policies, the governments tight operating budgets and patterns of retrenchment has meant out of the three cities I have studied Baltimore demonstrates the least investment in cycling. Each of the cities I have studied has embraced cycling in a belief that “as a relatively inexpensive way to build creative city cred, bike lanes are almost irresistible” (Gibson, 2013, p. 8). However, resultant of various other contributing processes of urban decline in the city, Baltimore's commitment has been more symbolic, uneven, and reliant on private and charitable entities. According to the Alliance for Biking and Walking (2012) Boston spends around double its federal transportation funds per capita on cycling and walking projects than Baltimore, and Washington spends around forty five times as much per capita. Although many other factors contribute, this is reflected in part by both Boston and Washington DC having a significantly higher bicycle mode share for commuters, around double for both cities (Alliance for Biking and Walking, 2012). As can be seen in Figure # Baltimore has a sparse number of bike lanes, and multi-use paths, whilst those that do exist have centered on the inner harbor in the city center and the higher-class neighborhoods to the North (in particular the community of Roland Park).



(Figure 3. Mapping of cycling infrastructure in Baltimore)

In many ways it appears that in Baltimore “the needs of cyclists have been and are still neglected in the transport system”, relegated along with other forms of urban transport to be secondary to the car in particular, despite attempts to demonstrate commitment to support cycling is growing (Koglin, 2011, p. 225). A further example of this is that in comparison to Washington DC and Boston, where there is a dedicated cycling office, Baltimore's planning for cycling as transportation in the city comes down to one person housed within a wider reaching department. When I interviewed George, he stated to me early in our conversation that “When I came on

board here almost immediately the budget to do bike infrastructure was cut significantly. Like I want to say over half, so it was a challenge” (G. Maggio, Personal communication, June 28 2013). Whilst Boston has expanded political investment in cycling (discussed at length in chapter two) and cycling orientated infrastructure (including the Hubway), albeit often through spending private capital, Baltimore has integrated cycling into the city under more necessarily strict adherence to neoliberal doctrines of austerity (Lauermann and Davidson, 2013). This has meant that cycling in Baltimore seems to be more greatly influenced by volunteer groups and events, rather than being firstly defined by the presence of a commuter community and infrastructural investments.

Within a broader context in Baltimore “where civic leaders joke that they ‘should be so lucky to have [the] problem’ of gentrification”, their “scope for actually delivering on creativity-led urban regeneration may be limited” in comparison to other cities (Peck, 2005, p. 762). Thus the process through which the city has had to pursue regeneration, relying heavily on private and volunteer entities in order to attract a creative class, has meant that to a great extent authority over the formation of the city appears “detached from the “centre”” and rather is the outcome of a related group of actors (Allen and Cochrane, 2010, p. 1074). Instead unlikely partners are drawn into assemblages focused on attracting creative regeneration, embedded in patterns of urban reformation through which they become the primary victims of urban displacement. The recent establishment of advocacy groups in the city, in the latter half of the last decade and the beginning of this decade, has given impetus for expanding cycling. However, the lack of concerted and centralized investment into

cycling has meant that it is defined more by privatized interests, volunteer groups, and multiple scaled down city agencies. Indeed the organization of cycling in Baltimore seems to be intimately tied into an aggressive and extreme restructuring of Baltimore, where “the liberal-welfare city has been systematically dismantled” (Silk and Andrews, 2011, p. 454). This is not to suggest that there has been an absence of the later phase of policy development identified within Boston, but the relative lack of coordination and investment by a centralized government agency for cycling has meant its integration in the city has been left to a more distributed network of actors and stakeholders.

Theoretical underpinnings

In order to explore this distributed, messy, and multi linear development of cycling in Baltimore I have utilized the concept of the assemblage, and in particular the understanding of the city as assemblage (McFarlane, 2011a, 2011b; McFarlane and Anderson, 2011; McCann, 2011; McCann et al, 2013; Sassen, 2008; Swanton, 2011). The philosophical origins of the concept of the assemblage are often attributed to Deleuze & Guattari, specifically in their work in *A Thousand Plateaus: Capitalism and Schizophrenia* (1987). However, the term does have “multiple origins” and importantly since these origins “its various strands have grown across a range of disciplines” resulting in many definitions and applications of the concept (McCann et al, 2013, p. 582). For Deleuze and Guattari (1987), the assemblage functions as a collectivity of actors constantly in the process of association, bring assembled and disassembled. Indeed there may be moments of consistency but this “is not effected

through a model of linear, externally imposed hierarchical order” instead “What holds the assemblage together is not the play of framing forms or linear causalities but a multitude of functional and affective relations” (Parviainen, 2010, p. 321). As such “For Deleuze and Guattari, all social formations are heterogeneous arrangements of material and immaterial forces –matter, images, desires, languages, technologies – that function, against any material/ideal or base/superstructure dichotomies, in the production of particular consistencies and effects” (Thoburn, 2007, p. 82). In part it is an attempt to move away from mechanistic conceptions of social processes, being more comfortable with emergence as the fundamental element of the social.

With the model Deleuze and Guattari (1987) offer the possibility for chaos, randomness becomes more viable as “The world is made up of all kinds of things brought in to relation with one another... through a continuous and largely involuntary process of encounter” (Thrift, 2006, p. 139). However, assemblage thinking does “recognize both structurizing and indeterminate effects” (Venn, 2006, p. 107), so that hierarchies, structures, and inequalities do occur, but these are not pre-ordained or achieved through linear processes. In this sense this approach does not reject that certain networks of associations are made to matter, but that “the assemblage, in being more attuned to thinking the unstable and heterogeneous structuring of everyday life, offers flexible arrangements of conceptual grip and creative association, enabling us to unpick the structures, dynamics and ruptures that ultimately make up the social” (Dewsbury, 2011, p. 149). In a broad theoretical sense for this project the assemblage is a way to think through the city, its communities, and events, as a complexly interrelated web of relations and associations. It “allows and

encourages the study of the heterogeneous connections between objects, spaces, materials, machines, bodies, subjectivities, symbols, formulas and so on that ‘assemble’ the city in multiple ways” (Farias, 2010, p. 14). As such power and governance is not enacted through some dialectic process between those that govern, and those that are governed. Instead outcomes and power is achieved through the interaction of a dispersed network of actors, forming often-unexpected relationships, and resulting sometimes-surprising effects.

The assemblage, “as a series of dispersed but mutually implicated networks” (Puar, 2005, p. 127), allows us to think primarily of the complex associations between actors, and the work to bring these heterogeneous elements together, as the important point of study (McCann et al, 2013). The city is the agglomeration of “all kinds of hybrids being continually recast by processes of circulation within and between particular spaces” (Thrift, 2006, p. 139). As such conceptualizing the city as assemblage makes us pay particular attention to the complex and multiple city, grappling with “a relational perspective that focuses on the labor of making, remaking, and unmaking particular configurations of urbanism” (McCann et al, 2013, p. 586). In this sense mapping the city as assemblage “responds to the simple question that if cities are distributed, sociomaterial and often incoherent, then how might we come to know and contest them?” (McFarlane, 2011b, p. 732). It does this by suggesting that the city does not have to be drawn into linear explanations. Rather it is important to grasp that “Some of the tangled relationships that lie before us may co-exist uneasily with one another, to the extent that it may seem odd that they are part of the same formation”, thus requiring “facing up to the possibility that heterogeneous

elements can hold together without actually forming a coherent whole” (Allen, 2011, p. 154). Thus the city is always both a (re)production of dominant logics of governance, in this case neoliberal urban governance with class, race and gendered outcomes, and moments in which these logics are disrupted.

Often the possibilities of certain events are premised on the unlikely combining of these actions and intentions of confirming and subverting the neoliberal or creative vision for the city. Thus each event that conforms to certain neoliberal core tenets also “contains the traces, remnants, seeds and potential for the alternate state, and need not exist in hostile opposition” (Legg, 2011, p. 129). Thus to fully understand Baltimore, its cycling community, and the events I have studied it is necessary to recognize the presence of policies, infrastructures, and planning that fails to service the common good of the city, and rather is in the interest of the city as a space of entrepreneurialism (Harvey, 2001). However, it is also important to recognize in the same moment that the role cycling performs in the construction of the creative neoliberal city is only one dimension to its lived presence in the city. The assemblage encourages thinking of “capitalism as a form of life, although not as a global abstract logic imposing its forms into local spaces, but as a concrete process assuming multiple forms even within a city” (Farias, 2011, p. 368). Thus I do not eschew the descriptions of neoliberal and creative urban capitalism set out to this point, but rather through studying the cycling community in Baltimore I have also put this political-economic context into relation with concrete expressions of capitalism, and the moments of its disruption.

Methods and Methodology

The assemblage is a mode of thinking about cities as a “combination of stabilized and destabilized elements... constantly in a double process of transformation and destruction, reconstruction and decay” (Bender, 2010, p. 316). However, conceptualizing the city as assemblage does not prescribe particular methods in the study of the city. Instead it informs the application of a potentially unlimited number of modes of study. In this case it means bringing together multiple forms of observation, interviewing, and analysis of texts to construct a description of the multiple associations that are “enrolling, articulating, problematising, producing hierarchies” essential to “the production of urbanisms” (McFarlane, 2011b, p. 734). It is a use of various methods to bring the “often forgotten spaces and actors into the picture... [to] reveal unexpected turns and agencies” (McFarlane, 2011b, p. 734). As McFarlane (2011b) goes on to discuss:

Assemblage thinking should not be seen as an attempt to install an alternative hegemonic way of thinking about urban [and physical cultural] theory that excludes other theoretical and methodological lenses. While assemblage thinking has become increasingly put to work and in a wider variety of ways, it can only be useful in relation to specific questions and projects, and through existing traditions of critical urban thought (p. 738).

Thus I do not propose the use of novel methods, and have drawn on various critical conceptions of the urban to inform my study. However, the assemblage

orients the use of these concepts and methods so as to explore the urban as complex assemblage of actors, policies, programs, and infrastructures, willing to hold together seemingly disparate elements, rather than reducing them to “networks of association [we have constructed] before we enter the research network” (Ruming, 2009, p. 453). As such the methodological approach to the assemblage orients around the reactive, open, and empirical description of the complex set of associations that inform the event at hand. In order to achieve this I have utilized:

- Interviewing (both in situ as a participant and in more formal interview settings)
- Observation (this was both as participant and as a non-participant)
- Video and sound documentation
- Policy analysis and popular text analysis (including forms of new media)

The majority of the information that was used for this chapter centered on interviewing, observation and visual recordings that are particularly appropriate for research into cycling as a mobile practice (Spinney, 2011). However, these more local and granular sources of information have also been tied into macro urban processes, and the policy and popular texts that inform them. As such this chapter develops ethnographic and visual methods to produce “granulated, grounded, and provisional forms” of information to add depth to the analysis of cycling's relation to “neoliberalism as an ideological and/or macroinstitutional phenomenon” that has been developed to this point (Peck, 2013, p. 152). Extended copies of field notes have

been included in the appendices to this document and still images of several recordings have been utilized throughout this chapter. All video, sound, and interview recordings have been stored for future reference.

The utilization of interview and observation techniques means that there are similarities between my data collection and what may be broadly referred to as 'ethnographic methods'. However, it is important to note that this does not suggest that this project is an ethnography. I certainly did not reach a point of saturation in the field, where “information occurs so repeatedly that the researcher can anticipate it and whereby the collection of more data appears to have no additional interpretive worth” (Onwuegbuzie et al, 2009, p. 4). However, I have spent several years collecting, and paying attention to information about cycling in Baltimore, and research into the cities historic orientation to cycling has drawn on documents over a much more extended historical period. I spent around 15 hours in the field observing across several events during a three-month period, with some additional time riding around the city. These observations were attuned to human practices, but also attempted to record information on the “complex web of relations between humans and non-humans” where it became relevant (Ruming, 2009, p. 545). During this time I also carried out close to three hours of interviewing, ranging from an hour long interview with George Maggio, a city employee, to several small five to ten minute conversations with participants at different events during this time. In addition over this three month period I also maintained an online presence, being a member of the online communities for several cycling groups in the city, receiving city

communications regarding community events, and checking regularly on blogs and organization websites for city cycling groups.

What I have sought to construct is a form of description that “examines not just how current conditions are historically drawn together (and then held together or reassembled), but to how events disrupt conditions, form new connections, generate different encounters and produce alternative urban imaginaries” (McFarlane, 2011b, p. 735). It extends on from the previous chapters of this project by adding an observational description of how cycling is lived in cities, adding to the thorough analysis of broad discourses and policies provided previously. It is not an a-political act, however “in its focus on how contexts, structures and inequalities are made and operate in practice rather than identifying key actors and processes in advance” (McFarlane, 2011b, p. 738), my research approach has informed not only the concrete ways in which the neoliberal and creative city is formed through cycling, but also the moments in which it is challenged as I eschewed a clear a priori political agenda.

Tracing Baltimore's cycling community: understanding the complex response to cycling policy and the messiness of urban governance

Against a background of neoliberal approaches to governing the city, focused on creative rejuvenation agendas (Ponzini and Rossi, 2010), I have chosen one event, the June 2013 edition of the Baltimore Bike Party (BBP), to highlight the overlapping and heterogeneous impacts cycling has for Baltimore. In addition I have utilized information from a number of other events, interviews, documents, media, and observations whilst riding around the city to support the analysis of the BBP, but also

as they came to be associated with this event in various ways. This structure to the chapter provides a unifying central event from which to trace out associations and actors, and utilizes the BBP as a means through which to highlight some of the specific contradictions that are held together within a context of Baltimore as a creative city (Ponzini and Rossi, 2010). The BBP and other connected cycling events thus demonstrate that “an image of the all-encompassing power of neoliberalism” (Newman, 2013, p. 13) and neoliberal urban governance may not be able to speak to the messiness of governing Baltimore. However, what is also important is that to conceptualize the multiple actors, groups, and events of the community as functioning in response from below to those that govern them, is equally problematic. Thus what became clear was that these events, as emblematic of the cycling community in the city, were not enacted purely as a form of resistance or “by the imposition of powers ‘from above’ by the diktats of a ruling clique, but through the tangled and cross-cutting political relationships between actors engaged in a complex set of political mobilisations to secure, modify or translate their goals and interests” (Allen, 2011, p. 155). The BBP and other events were formed through complex associations “where different flows and things come together in alignments from which surprising juxtapositions can be produced” (Amin and Thrift, 2004, p. 232). In studying each of these events I have mapped the expected and unexpected relations that are made to matter, where they both conform to and disrupt dominant political, economic, and social norms. I have brought “attention to the significance of local actors who, in seeking to mediate or mitigate the impact of neoliberal policies [and normative concepts of race and gender], generate innovations that may in turn be appropriated

by neoliberal projects seeking to configure alternatives within the dominant” (Newman, 2013, p. 10). The multiple relations that actors form, and the various sites in which they act in the city are thus integral to how the assemblage is formed across groups and events that may have very different intents. The vignettes provided here are comprised from the multiple sources of information gathered regarding cycling in Baltimore, and are provided to elucidate the various, and simultaneous, confirmations and contradictions of cycling in a racialized and gendered U.S. neoliberal city.

My time spent attending a gathering of the Baltimore Bike Party (BBP) was a point of entry into the specific and messy formation of the city. In particular it focused on the role a large scale cycling event can play symbolically and socially for the cities cycling community. However, where it condensed a variety of actors it became a point through which to map the ways that the BBP functioned significantly in relation to the spatiality and politics of Baltimore. As such “cities are regarded as open and internally differentiated, temporarily assembled” (Cook and Ward, 2012, p. 779), but that the ways in which the city is variously assembled does have particular structured outcomes. Within the city the BBP becomes one of the central events through which to understand how cycling opens and closes the potentialities of the city. Put otherwise as a key event in the cycling community, and within the broader urban landscape of the city, the BBP functions to both service the dominant neoliberal doctrines of the municipal government, and its private partners, whilst also providing an experience of cycling that does not fit neatly into these logics. The BBP demonstrated the ways in which cycling maintains the obdurate structures of the city (Hommels, 2010). Specifically the reproduction of class, race, and gender based

marginalizations and abuses that exist in the city. Yet as a grassroots, and uniquely structured event, it also showed how cycling has at the same time become an agent of disruption and change.

Decentralized organization

In the run up to the 28th of June I had come across the digital ‘flyers’ for the Baltimore Bike Party (BBP). I was connected to this flyer through the many blogs and Facebook pages that made up the points of contact and digital presence of the various cycling groups that are part of the cycling ‘community’ in Baltimore. It was linked in by the Facebook pages of the somewhat anarchic and feminist, respectively, cycling groups, the Sixpack ride and the Crank Mavens. However, a cycling advocacy group and other Baltimore cycling scene aggregators also linked to the notification. The bike party is not unique to Baltimore, and the model has been (re)produced throughout the U.S. as well as internationally. As an event it relates loosely to the concept of critical mass in organization, but definitely lacks the overt political intent embedded in critical mass, captured in their slogan “We are not blocking traffic, we *are* traffic!” (Furness, 2010). As with critical mass there is not a clearly designated leader of the BBP as such, although there seems to be an ever-changing core group involved in the loose planning of the event. It meets once a month, with a pre-determined route, theme, and after party location. The event has a distributed organizational structure, so that whilst the outcomes of the event are influenced by a multitude of actors, even in the planning the ride is organized by an ever-changing network of people. As such there is a constantly altering structure to

the group, and with these changes there is a constantly evolving intention for the ride. This organizational structure means that the BBP does take actions as one entity, but the composition of the entity changes regularly. Following the event on the 28th of June those at the center of the organization reacted to the attendance of the Mayor, and with it the increased police presence, by introducing new rules for the event:

These requests are coming not only from the organizers of Bike Party but also from the City in an attempt to ensure that Bike Party remains a sustainable event.

1) Please don't drink alcohol while riding. In the eyes of the law (whether you agree or not) this is the equivalent of drinking and driving. We have our alcohol permit for the after party and there will be plenty of opportunity to party there!

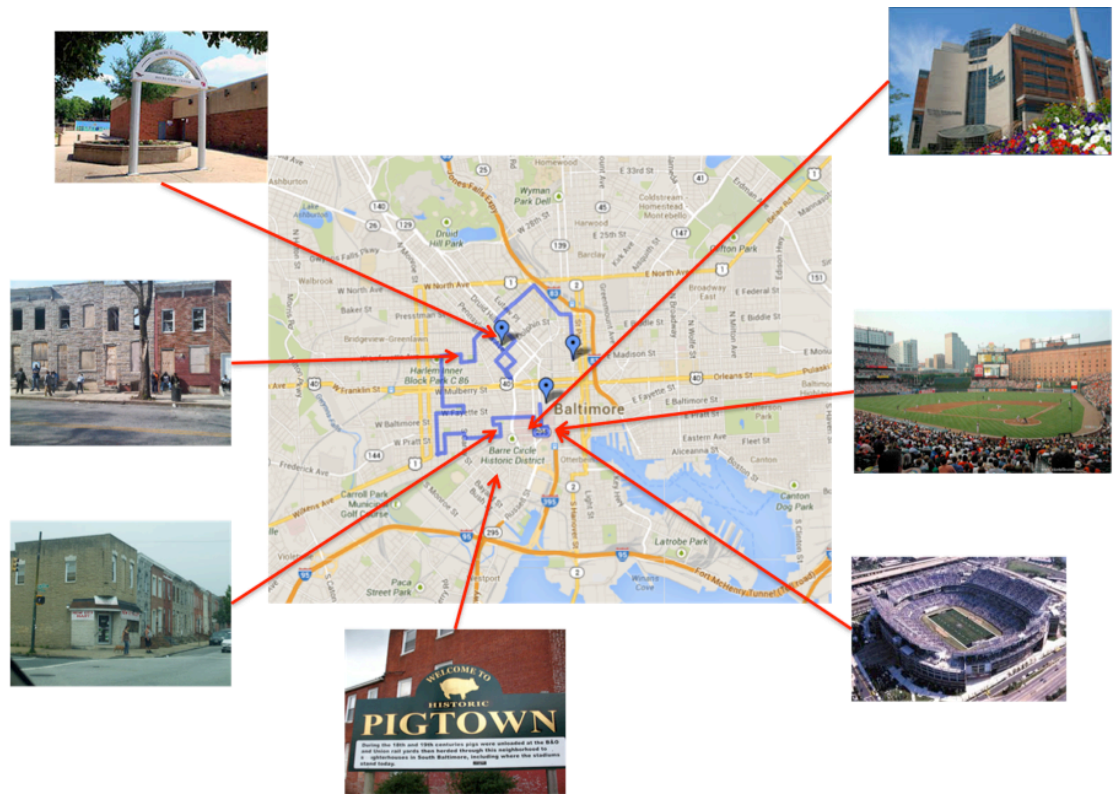
2) Ride only in the lanes going to direction you are. I promise you, the ride is just as fun in the right lane as it is in the left lane on Eastern Ave. Do NOT ride in oncoming traffic, whether you see a car coming or not.

3) THIS IS A NEW ONE. This month we are going to try implementing the model used by East Bay and other Bike Parties on the West Coast. We are asking EVERYONE TO STOP AT ALL RED LIGHTS. Don't worry, the people in front of you aren't going to get too far ahead as they will have to stop at the next red light (Tim Barnett, August 2013).

The presence of the Mayor on the ride changed the composition of actors associated with the organization of the event, leading to a resultant change that led to the introduction of new rules as well as an attempt to encourage adherence to these rule changes for all its attendees. The ride was also moved from its usual date at the end of August to avoid disrupting the Grand Prix, a key event in the mayor's investment plan for the city, selling the city as "The image of Baltimore itself became important" within this entrepreneurial shift (Harvey, 2001, p. 139). As such the BBP demonstrates a distributed organizational structure, one that is variously associated with other (non)governmental actors, but that has enough coherence at times to form structures that result in rules, event planning, and advertising. As McCann states "Assemblages are always works in progress" (McCann, 2011, p. 145), and the BBP's organizational structure demonstrates the never finalized nature of its formation, and those that play a role in this process. Yet at particular points the BBP as a collective organization takes actions, which in this case now included the impact of requests/expectations of the city government as they became associated into the organizational structure. In this case the assembled actors of the municipal government, and the current core of people that organize the BBP, led to this event adhering to the cities intentions for cycling to a greater extent. Although it is also important to recognize that this association was informal, and therefore potentially momentary. Indeed "assemblages are always coming apart as much as coming together" (McCann, 2011, p. 145), so this particular shift in the formation and directions of the events planning will inevitably change over time.

Disoriented intentions

The ride was to meet at the Washington monument in downtown, and then would be tracing a pre-determined route that had been distributed through various forms of social media. I had come across the route through Facebook, and it showed that we would mostly be working our way through the cities Westside neighborhoods:



(Figure 4. The route of the Baltimore Bike Party in June 2013)

As I stood and waited for the start of the event I was positioned near the 'main hub' of those that were organizing the ride for that night. It was a seemingly impromptu group in its totality, with various volunteers arriving and being shown the tasks that needed to be carried out. Several of these individuals were people that I would recognize again at the various other cycling events I attended around the city.

Members of the 'crank mavens' women's only cycling group were there, as well as several people involved in bike advocacy in the city, and others that would later be involved in a music and cycling event co-hosted by the city parks and recreation department. Although these actors re-occurred throughout my time with the cycling community in the city, rarely did they perform in the same role. Some were at the BBP as supporting volunteers, but in other events they took leadership roles. As Allen (2011) suggests “The open-ended nature of such formations means that the same actors and institutions may find themselves entangled in quite different ways in more than one economic or political assemblage” (p. 155). This appeared to be the case through my observations, certain actors were central in certain events, but were much more on the fringes of the formation of other events.



(Figure 5. The meeting point just before the start of the Baltimore Bike Party June 2013)

As the crowd grew nearing the start of the ride a man arrived representing National Bohemian Beer (colloquially known as 'Natty Boh') and started speaking to the nearest volunteer to me, identified by her fluoro yellow safety vest. As my field notes discuss he was there to try and organize the potential of sponsoring the event, maybe with an after party, and wanted to talk to whoever was in charge:

A guy turned up and spoke to one of the volunteers that were handing out armbands for the after party event. He introduced himself as being from the 'Natty Boh' company and he was very much interested in talking to the organizer about potentially sponsoring an after party, providing some free kegs...erm... and this was met by some surprise, so she tried to find the guy that was leading some of the organization that night... although its difficult to say that he is very much in charge. But non-the-less he had no time for the guy from 'Natty Boh'... the organizers certainly weren't failing over each other to negotiate that deal, and the recognition from a big brand (Field notes – June 28 2013)

It was clear the interests of capital were at play here, with the presence of a seemingly untapped market for 'Natty Boh' to expand their new ending pursuit of profit. In many ways the event was intended to create a mobile “commoning” of space so as to provide an inclusive access to cycling (Harrison and Hoyler, 2014, p.

8). What this interaction represented was an attempt by a profit-orientated entity to commercially co-opt this event. An increasingly normalized process where a variety of previously common goods have been drawn into market oriented structures of private capital (Németh, 2012). Although much more informal, this attempt at the privatization of cycling in this setting resonates with what has happened in Boston around the Hubway. Both the BBP and the Hubway represent ways through which to access cycling in the streets of the city, and both have been, or have attempted to have been, drawn into a partnership with a privatized for profit partner, now a common approach to structuring the urban (MacLeod, 2011). This moment reiterated common interests of capital, specifically as they become refracted through a contemporary neoliberal context (Peck & Tickell, 2002). However, the a priori, and smooth integration of a private partner into the Hubway system was not replicated with the BBP, and this proposition from Natty Boh. The expected roll-with-it framework (Keil, 2009) of this neoliberal informed interaction, where the potential sources of necessary funds for expanding this event was reduced to private investment, became dislodged. Although my knowledge of the exact organizational workings of the bike party are limited, the volunteer nearest to me turned to one man whom seemed at the center of the organization that night, but the response seemed to surprise the man from 'Natty Boh'. He was told that they could not really respond right now and it was not their decision alone to make, he would have to email the BBP group. This conversation also was forced to a shortened conclusion as the departure time approached, and the massive group started to lurch its way towards the first street we would be heading down. The intentions of this capital entity embodied in the 'Natty

Boh' man became clearly disrupted by the actors that made up the BBP and their organizational logics, but also the assemblage that was the BBP on that particular night as its movement as a collective could not be slowed by these individuals, leading to a quickened and incomplete end to this association.

Multiple enactments

On the day of the June BBP event I would be in Baltimore that day talking to two interview subjects, George a city employee, and Jack a bike advocate in the city. In fact during both of these interviews there was discussion of the BBP brought up by the interviewee's, and particular discussion of the organization with Jack. It became obvious through this conversation with Jack about the BBP that although he was not directly involved in the organization of the event, he knew a lot about it and his organization integrated its effort with the events:

I mean if you talk to somebody who drives to work alone everyday, and isn't physically active, getting them to jump right in and start commuting on their bike is hard, because that is too much of a leap. The first thing you say is come to a bike party and you get people comfortable on a bike on the city streets (J. Woodly, personal communication, June 28 2013).

This highlighted both how integral it was to successful advocacy to be involved with many of the events and people related to cycling, but also the clearly overlapping and multiple relations that Jack had with the BBP as I saw him attending

later that night. In this sense the set of connections that could at any one moment be called the cycling related assemblage in Baltimore is actually multiple and layered. This became ever more evident as I spoke to George later that day. Both George and Jack knew each other, and had variously interacted with each other. However, at that one moment they were not only both connected as cyclists that have and were attending the BBP, and were variously friendly with those at the core of its organization, but they were also connected as Jack in his capacity as the head of an advocacy group was just about to mail their letter of expectations for the coming fiscal year to the government office in which George works:

Interviewer: So I guess that is a good place to start, it was one of the things I was talking to George about... so maybe I can start in here... he was talking a lot about the Mayors initiative to bring in 10000 new families to the city as part of the creative Baltimore initiative, and he had pointed towards cycling playing a role in that and at least getting some support through that process... have you seen it get easier in terms of advocacy since that point, or has that had no real impact?

Jack: Well I would say that talk to me in three months because we just put together our list of priorities for the fiscal year 13/14, from July to June of next year, so that is basically everything that we already have in the pipeline and is ready to go, he probably told you all about the downtown bike network and the Maryland avenue cycle track, stuff like that?

Interviewer: Umhm

Jack: And I can actually show you, I don't know if he showed you where that would go? I mean we are just a block away from Maryland Ave now so I could demonstrate to you now what it would look like... um... so its all that stuff that is on the books and is ready to go that we just need to make sure happens... erm... so our letter is basically just saying, just do it, you know... you've got the money now do whatever you need to do to make it happen.
(J. Woody, personal communication, June 28 2013).

It was clear the relations between these two participants in my study were multiple, at times overlapping and at times distinct, and in this moment simultaneous. In other words their complex, multiple, and simultaneous associations with each other demonstrated that we have a multitude of associations that position us within an assemblage we are part of, but that some of these associations occur with the same actant in variously overlapping or mutually exclusive expressions (Deleuze, 1988). Amin and Thrift (2002) suggest that “cities are sites of dense and varied institutional activity, situated in firms, business and public center organizations, interest groups, voluntary and religious organizations, lobbying groups and protest campaigns, and so on” (p. 153). George and Jack represent but two of these, yet they demonstrate the multiple, contradictory, and simultaneous associations that can exist between entities within the urban setting. They are part of overlapping urban multiplicities that are not “fluidly following from each other”, but are still both integral to the cities “multiple enactments” (Farias, 2010, p. 14).

Surprising and overlapping intentions

As I found out from both George and Jack the mayor would be at the event that night:

Yea yea, what is really cool was that there was not only communication with the communities that they will be riding through but connection with Bryan at the West Side Economic Development group and the mayors office... the mayor is going to be on the ride tonight... yea you picked a good week to come along on the bike party ride (G. Maggio, personal communication, June 28 2013).

Jack had explained that the bike party would be going through some of the working class neighborhoods on the west side of the city at the invitation of a group of pastor's that represented the churches in the community. So what resulted were an odd overlap of interests that had brought together the BBP organizers, the mayor and the representatives of these neighborhoods. For the pastor's it was seemingly an opportunity to bring in an event that brought recognition to their neighborhood. It had the potential to create physical activity outreach, inviting people to join in, as well as developing a model for offering an 'inviting' cycling atmosphere. It also brought some investment – if only briefly – as seventeen hundred people descended on the area buying water, beer or food. Indeed the Upton Planning Committee took direct advantage of this by selling water at the mid point stop for the ride. The weather was a heavy haze in the wake of an oncoming storm, playing a particular role that night.

As Larsen (2013) states “In contrast to cars and public transport, cycling almost always provides a multisensory awareness of the weather and environment; cyclists inhabit the air, the weather-world (Ingold, 2010) and the typography of the place” (p. 4). As such high temperatures and a thick humidity surrounded riders, impinging upon our corporeal capabilities, and helped make this economic opportunity worthwhile for the community group as the need for water was heightened within these conditions.



(Figure 6. The Upton Planning committee selling water at the mid ride point of the Baltimore Bike Party in June 2013)

For the mayor the ride now offered the opportunity to engage with cyclists, perceived as a representative group of the creative classes with growing political power as they have become increasingly well organized and funded (indeed Jack’s organization has only existed in the last 5-6 years, and has recently received enough

funding to now fully support his full time salary). However, it also was a chance to engage with the people that represented these communities we would be entering tonight. The mayor did not miss time spent with both of the groups as I observed her spending time initially with BBP attendee's at the start of the ride downtown and at the mid point.



(Figure 7. Mayor Stephanie Rawlings-Blake taking photos with Baltimore Bike Party attendees)

Later I saw her spending time with community leaders and police representatives at the mid ride point:



(Figure 8. Mayor Stephanie Rawlings-Blake taking photos with local community leaders and local police leaders. O'Doherty, 2013)

Finally this route and connection was of interest for the bike party. The event, and its specific route on that particular night, offered the chance for the ride to be, at least projecting, integration with all segments of the Baltimore citizenry. It attempted to make connection with the logic that “Codes, practices and meanings of the local cycle cultures are tremendously significant for travel behaviour (Jensen, 2009; Schwanen et al., 2012), and being exposed to this from childhood and onwards impact future practices of and access to cycle cultures” (Jensen, 2013, p. 224). This relation demonstrated the benefits of the event in the face of police and city government overview, but also in a broader development of support for cycling in the

city generally. This was particularly the case in Baltimore as some various actors involved with the BBP also play roles in other cycling groups and advocacy efforts throughout the city. There was clear overlaps of pursuing the event, and its relation to these poorer west side neighborhoods, for the promotion of the BBP as an event in and of its self, but also as the impacts of this event had effects on cycling in the city more broadly.

Creating spaces of gender equality

The BBP not only represented a network of people and events that served to both confirm, and challenge dominant neoliberal economic and political logics, but it also both disrupted and extended race and gender divisions in the cycling community. As I made observations riding around the city I noticed that women under represented in the few people I saw using their bicycles for transportation. Indeed Mosquera et al (2012) discuss that “Women Face More Barriers (Safety and Physical Aesthetics Aspects). Compared with men, women perceived greater risks as cyclists. These risks are related to perceived safety issues such as feeling more vulnerable to personal attacks, injuries, and theft” (p. 782). This gender imbalance for the city is so stark that an interview participant, George Maggio, stated that the presence of women (mothers in particular) riding on the streets of Baltimore would be an indicator of success in making the city bicycle friendly, assuming that currently the urban climate poses a greater danger to women on bikes:

Its mostly men, but then what I think is key, when we are getting really good in the city is when we start seeing mom's taking their kids to school or to daycare. If we can get to the point where our streets are safe enough that those people think that they can do it, and if we can make biking be a normal kind of thing, something that everybody can do... erm its like the old comparison, no one in Amsterdam or Copenhagen thinks of themselves as cyclists but they ride bikes... its like here its so normalized that "I'm not a motorist, I'm not a driver" its not a label that we're cognizant of but its definitely something that we are all doing. So its about getting biking to that point where we don't even think about it its just yep... (G. Maggio, personal communication, June 28 2013).

This gender imbalance in cycling in Baltimore that George highlights indeed reflects upon the national statistics that have been recorded on bicycle use by gender. The Alliance for Biking and Walking (2010) reported that "Nationwide, just 23% of bicycle to work trips are women" (p. 40), and although there are variations by state (from Alabama having the widest gender gap, and Rhode Island the smallest) no state reverses this difference in participation. As such in Baltimore, and beyond, an increase in women cyclists is an indicator of even greater changes in access to, and regular use of the bicycle for recreation and transportation.

Yet despite these observations confirming an adherence to general trend in the inequalities of participation in cycling, both as transportation and recreation, my time observing and interviewing in Baltimore also highlighted that there were certain

spaces in which women were cycling in greater numbers. Although a broad gender balance in cycling is seemingly statistically unobtainable for any city or state location within the U.S. to this point, several events were much more gender balanced than national statistics and studies would suggest. What became clear as I attended the BBP in June, and subsequent events like the Crank Mavens ride, and the Ride the Reservoir weekly event, as well as the 'Music to my Gears' event held toward the end of the summer, was that women were more evenly represented with men at such gatherings. It appeared that events that could provide a safer environment, providing a supportive social grouping, and affording enough protection in numbers to mitigate the greater number of threats women cyclists face in urban settings (Mosquera et al, 2012). Indeed “The potential barriers to cycling for women are well documented”, but where these events could mitigate “fear of road danger” they appear to have had some impact on participation numbers (Steinbach et al, 2011, p. 1124). In particular Jennifer, one of the women on the Crank Mavens event I attended, stated that:

Its kind of the point to getting to know other people, have a good time, and see other parts of the city which boosts the safety aspect for everyone (J. Harrison, personal communication, July 1 2013).

This mostly women's only group, through a more pointed intention to create a safer and more inviting cycling experience for women, extended the role the BBP played in creating a more equal gender participation. The Crank Mavens group created a necessary event, and community, for many women to initiate their

participation in cycling on city streets, and I say necessary in light of the regular forms of harassment that women experienced riding in the city, that I heard re-told whilst riding with the Mavens:

One woman told a story of her daily commuting by bicycle and she was saying that she has been having the same person harassing her from his car everyday on a certain route to the train station... she was saying that it started with some shouting at her as he passed, followed by buzzing her in his car (driving really close to her), and this continued to escalate. She then talked about the last couple of incidents before she stopped taking that route. First was that the guy passed her in his car, slowed down and shouted “why don’t you get off the fucking road, ride somewhere you’re supposed to fucking be”, she replied by shouting “go fuck yourself”... And then finally it ended with the guy throwing an open can of something at her, so she then started taking a different route following that (Field notes, July 1 2013).

With experiences like this, all the cycling events in the city that have, and continue to provide a buffer from forms of aggression, are necessary for the cycling community. Events like the BBP and the Crank Mavens did not necessarily utilize cycling specific infrastructure to protect cyclists on these rides, but the inclusive community experience provided protection from potentially threatening situations on the road. On the other hand events such as the 'Ride the Reservoir' and the 'Music to my Gears' event did not necessarily provide the protection of riding with a cohesive

grouping of people, but as they were events either hosted or co-hosted by the Baltimore City Recreation and Parks department (BCRP), they utilized park space that provided protective cycling space with off road cycling paths.

These observations suggest that when looking at the use of cycling for transportation in the city there was evidence of a large gender divide that resonated with national statistics. However, when a protective community space was developed through group participation at occasional events women were more equally represented. Titze et al (2010) state that women are more equally represented in using cycling for transport and recreation within nations where cycling is a larger mode share. As such Titze et al (2010) suggest that increased participation leads to more gender equality in participation, and that seems to be the replicated with these events, even if it is over relatively short periods of time. Certainly greater provision of protected cycling infrastructure will play a contributing role in increasing cyclists, and with it women riding bicycles in U.S. cities, as many of these high mode share nations also boast a comprehensive cycling specific infrastructure. However, what these events can do is momentarily mimic the road use numbers by cyclists that may be seen in higher mode share nations, and provide a more inviting space for women whom otherwise receive greater potential threats as they use the road. What seems to be the case is that an event like the BBP, or more specifically the Crank Mavens Monday night rides, replicates some elements of the conditions found in high bicycle mode share nations that has resulted in “almost no difference in the prevalence of female and male cyclists” (Titze et al, 2010, p. 428). This is an observational analysis that needs further expansion, and it is important to recognize that differing locations,

times of day, and organization of these groups and their will play a role in the attendance demographics. However, what was clear from this assessment was that much of the time Baltimore is a city is representative of “Countries with low rates of utilitarian cycling [that] also have substantial gender differences in cycling” (Garrard, Rose, and Lo, 2007, p. 55). Yet through these events, which create an assemblage of various actors, results in a setting that is inviting to a more gender-balanced group of participants.

Beecham and Wood (2014) identified several studies that give multiple reasons for the gender gap in cycling within nations where cycling does not have a high mode share. Some studies relate this participation to varying life stage expectations (Bonham and Wilson, 2012) and others to perception of safety (Heesch, Sahlqvist, and Garrard, 2012; Moesquera et al, 2012). More studies have pointed to the role of the built environment in encouraging cycling more generally, and therefore will play a role in changing the gender ratio through more open and safe access to streets (e.g. Garrard, Rose and Lo, 2008). However, it seems that to create cycling as a more inclusive form of transport or recreation it will take a combination of a multitude of elements. Cultural modeling, built environment, programs and policy will all have to play a role. It is difficult to predict how these will evolve, and the emergent outcomes they will have, but for cycling to be a positive communal resource for our communities it needs to do more than serve the moral imperatives of a small slice of the population of cities.

Cycling is not a cure-all for what are seen as issues within urban settings, but it has the potential to open up the city to more people, as much as it has the potential

to serve the interests of neoliberal capital. Our ability to comprehensively control the role cycling will play is always going to be limited by the complex and emergent nature of the city as assemblage. Instead attempts to make cycling inclusive and unrestricted will always be a process in relation to a multitude of other actors. Cycling can play a role “as an active project of assembling and generating translocal spaces and identities that respond to but exceed the exploitation of capital” (Jeffrey et al, 2012, p. 1254) and challenge the dominant frameworks of governance in the city. The Crank Mavens took action in the face of a lack of investment in programs and infrastructure to make city streets safer spaces for cycling, especially for currently marginalized populations. The creation of their weekly rides, alongside the BBP and other semi-governmental events, have gone some way to address the gender inequalities of cycling in Baltimore. However, it is a concern that the municipal government will rely on the effects of such events, rather than using them for impetus to make greater investment in supporting all those that wish to ride bicycles in Baltimore. Thus through creating these events that have variously been associated with, and walled off from other processes in the city (Jeffrey et al, 2012), they have grounded the communities and spaces of potential for new political, economic, and social organization of cycling in Baltimore. Though this will only be the case if these events resist being drawn into a “new urban politics” designed to “enhance the economic value of urban space and attract mobile capital in the restless quest for wealth and accumulation” (While et al, 2004, p. 549), and do not contribute to diverting attention away from “The current climate of cuts, austerity and state

retrenchment” (Newman, 2013, p. 1) in which opportunities for broad long term change are diminished.

An uneasy racial divide: the white spectacle and discourses of access

The BBP event, as well as several other related groups and events, when compared to participation statistics for the city demonstrated that they all in different ways bring “together elements from diverse established orders, thereby unsettling [] older orders”, whilst failing to address the fundamental causes of the inequalities in cycling participation in U.S. cities (Sassen, 2007, p. 232). These informal events, at the confluence of entrepreneurial capital and volunteer organizing, become a major aspect of addressing gender inequalities in urban cycling for Baltimore, as greater investment in infrastructure and programs to bring about more permanent change would violate “the foundational neoliberal project of ‘rolling back’ the state” (Bedore, 2014, p. 2). In addition the BBP event in June represented in part an attempt of local leaders to bring greater investment into primarily lower class black neighborhoods in the cities west side. These have been spaces marginalized by a history where “race and racism is embedded within particular public, private, and corporatized structures” has been prevalent in the city (Silk and Andrews, 2011, p. 453). The BBP was one way to bring greater attention to areas of the city that are often overlooked as investment flows to the consumption spaces of the inner harbor. The city government quickly came to support the ride, grappling on to an event in order to draw political capital through association, reaping the benefits from a neoliberal system predicated on an ability to “exploit signs of invention” (Thrift, 2006, p. 286). However, the

potential of the BBP event to address racial inequality did not sit easy with all that attended. The event in some ways was a chance to bring attention to oft forgotten communities, as well as an opportunity to create connection between them and the cities celebrated relatively affluent creative class residents (Peck, 2009), that cycling has seemingly been used to attract. In a belief that “cities must now subsidize the talented, just as they have long subsidized corporations” (p. 160), for a community to succeed in the creative city they must be able to attract this new population to bring in private capital, and what is left of municipal resources. This is a pattern expressed in bringing the BBP, despite this potentially being a first step in a widespread process of displacement of “intensely racialized and racist accounts of unworthy urban subjects” (Liu, 2006, p. 720). Left with little other support in the face a retrenching state, these poor predominantly black neighborhoods are caught in a situation where they must attract a creative class, that ultimately lead to their displacement (Gibson, 2013; McCann, 2007; Ratiu, 2013; Pratt, 2011; Wolman et al, 1994). Thus despite a potentially admirable intention behind the coalition, one aimed to bring the BBP to Baltimore's Westside, the BBP still consisted of a large crowd of predominantly white participants 'parading' through mostly poor black communities, blaring music emblematic of the 1980's, and disrupting traffic.



(Figure 9. The Baltimore Bike Party at several locations around Baltimore's west side neighborhoods, with mostly black residents looking on to most white participants)

This was a procession that at times felt as if it was doing little to interrupt “the consistent dehumanization of racialized subjects in the neoliberal narrative... that has become rhetorically acceptable even in its overtly racist, barely coded, forms” (Liu, 2006, p. 716). My concerns reflected anxieties Jack Woodly, a bike advocate,

expressed concerning how he felt about using spaces of urban decay for the event. The ease of utilizing the relatively deserted streets of West Baltimore makes it an attractive space for the BBP, whilst still housing some of the cities most marginalized populations. As such the problematic nature of the BBP event within an unjust class and racial history in the city, and its potential for positive change in the future, enacted simultaneously, for Jack, brought a moment of anxiety:

Interviewer: Okay yea... so you started talking about the bike party earlier and the route it is going to take through the west side neighborhoods and I wonder if that sort of outreach plays a role for your group in terms of advocating for and reaching out to those that don't, but may want to cycle. I guess I am wondering about how much you get involved with communities that wouldn't necessarily come to you expressing interest, but are open and could have the potential. I mean I know for these communities the five pastors came to you... or the bike party...

Jack: Yea firstly we don't have anything to do with organizing the bike party, it is run by a group of volunteers... so... but we use the bike party to... when people are just starting out cycling and are scared of riding in rush hour traffic we tell people to come to the bike party and you can ride with a thousand other cyclists in a safe environment. The other thing about the bike party that is great is that it goes through these neighborhoods where there is no bike culture that we have been able to discern and erm... the people are just super excited about it. At first I kind of felt a little bit bad, the first few times we

rolled through mostly black low-income neighborhoods. It felt awkward, I was like 'do they want us here right now?' and 'are we pushing an agenda on these people right now?' you know how does this look? But people were so excited that anybody was in their neighborhood for any reason and we were just open, asking people to come join in... Baltimore is a very segregated city in almost anyway you can think... we have worked with some high school kids who don't even know where the Washington monument is... I mean its right in the middle of town, it's a very recognizable monument and it just blew my mind that they didn't know where it was

Interviewer: right, right...

Jack: they go to high school somewhere else but other than that they won't leave their neighborhood, its a city of neighborhoods and can be very insular. So breaking down those barriers is important and bike party is a major step for us making those connections with other communities...

(J. Woodly, personal communication, June 28 2013)

This anxiety about the complexity of our presence resonated with me, an unease with such events always being both a positive and negative as they form unexpected associations, assembling in many ways contradictory actors, condensing complex histories and futures for the city. Certainly as an assemblage, holding together multifarious actors and intents, will have “uneven origins, contexts, interests, and consequences” (McCann et al, 2013, p. 584). The BBP was both an expression of the attempts to bring increased access to mobility and physical activity, by organizers

and local neighborhood leaders alike, but it also highlighted the race-based inequalities that exist in Baltimore. Further as an armature of the creative city the cycling practiced in the BBP held the potential to both support investment in marginalized urban communities, as well as to serve as a first step in a gentrification process that will “produce marginalisation and exclusion of long-term residents” (Ponzini and Rossi, 2010, p. 1041). The BBP was a demonstration that whilst a cycling event can represent a progressive politics in which cycling is understood as a solution to a number of urban ills, at the same time it can be drawn into “Creative city agendas [that] do little to tackle underlying problems of racial exclusion, oppression and inequality” (Catungal and Leslie, 2009, p. 703). The BBP momentarily addressed the racially inflected imbalance in investments into the city, both governmental and by private capital. However, as with the effects cycling events have had on gendered inequalities, the BBP's impacts were limited and momentary.

Conclusion

The BBP held on the night of June 28th, as well as the multiple other events and actors associated with this event, brought together “tangled relationships that... may co-exist uneasily with one another” representing multiple intents and leading to multiple divergent outcomes (Allen, 2011, p. 154). Problematic histories, and the potential to challenge, whilst also reproducing the marginalizing articulations of neoliberal logics, racist structures, and embedded gendered inequalities became condensed in this moment. At the same time government retrenchment in the past that facilitated the material becoming of the space we inhabited that night, and the

interests of political and economic futures combined for the mayor, members of the cycling community and the residents of the west side neighborhoods alike. This in turn produced an event that at times was disorienting and jarring, but was also variously rewarding for those at the center of its unique becoming. Cycling in the city at once draws on a history of disinvestment that is long and storied for American municipalities since at least the 1970's if not before, but also plays a role in the attempt to ensure growth through creative city agendas (Lawton et al, 2013). It is thus increasingly part of a vision of municipal government plans that focus on "design-intensive fashioning of downtowns featuring highrise corporate plazas and glittering commercial citadels, hotels and convention centres" and the "bidding process to host prestige exhibitions and magnetic arts, cultural and sporting venues and event" (MacLeod, 2011, p. 2630). As the mayor holds tight to a program designed to entice the in-migration of 10,000 new families, in an attempt to expand the tax base and ensure its creative growth, cycling is seen as a fundamental element to the continued (re)formation of city. As George eagerly offered

I see it as important as that is what we are seeing around the world, its like the younger generations are not buying these massive houses or buying cars as they are trying to reduce bills for their families... So I definitely see my work as being part of that, helping people in not having to fork out thousands of dollars a year for cars and um... and the infrastructure that is developed not only makes it safer for people to get around but it makes the whole city more livable.

(G. Maggio, personal communication, June 28 2013)

As such in Baltimore, as is the case in other cities around the U.S., “cycling articulates with wider struggles over gentrification and race”, as well as with gender based inequalities, and an increasing focus on fostering creative city economic rejuvenation (Gibson, 2013, p. 2). For the city these cycling events are a low cost means through which to boost potential for involvement in cycling, considered key in attracting a new young entrepreneurial class. For the Mayor the BBP was a chance to gain political capital in vital communities. For the organizers it was a chance to legitimate the positive impact and necessary existence of their event in the city. It was a chance for the expansion of private enterprise (Natty Boh) into new markets, and in turn the disruption of this attempt by the dispersed organizational structure of the BBP. However, it was also a chance for local leaders to encourage investment in their neighborhoods, in the face of wide retrenchment in government funded infrastructure and services. Thus the event functioned create a more gender equal space of participation, and even if problematically it serviced intentions to bring attention and fleeting investment to neglected lower class black communities. It brought together seemingly disparate interests and actions of various times and scale, with outcomes that will ripple out, both unintended and expected. The event was just one of several that I attended in the city that could not be reduced to either “a motley world of contingent practices that never amount to anything... or a tight seamless world of well-defined shifts and formations” (Allen, 2011, p. 154). It would have been an easy story to tell as this resistive event in some way subverted, through play, the intentions

of the city's government as it attempted to enforce its logics and the normalizations of its social sphere. However, in sharp contrast this event demonstrated the complex, divergent, multiple, and far extending networks that come together to be the city in practice.

The associations that connected out from the BBP event in June have highlighted the overall complexity of cities, and have demonstrated the complex ways in which cycling policies and its role in the neoliberal city have become lived in a manner that is very specific to Baltimore's history, and contemporary orientation to cycling. Through conceptualizing the city as assemblage I have sought to construct an "interpretation of networks, facilitated through a variety of qualitative methods, allowing a greater understanding of the actual organisation of cities" (Ruming, 2009, p. 453). Also it has become a "productive way of framing neoliberal governance" (Newman, 2013, p. 4), grasping how complex networks of actors become embroiled in "pulling down' elements of neoliberal rationalities and [dis]articulating these with 'local' programmes and projects" (Newman, 2013, p. 7). To facilitate this approach I looked to follow the actors that played a role in the formation of the cycling community that surrounded these events. What became clear very early on in this process is that these events, and events like them, are key to cycling in the city, and the effect that cycling has on the city more broadly. These events were nodes at the intersection of a multitude of associations that were variously expected and unexpected, enduring in their repetition and fleeting in their presence. In particular conceptions of class, neoliberal urban governance, and gender came to the forefront

as I followed different elements of the network. As such these became points of extended discussion for me.

Cycling in Baltimore is underfunded in comparison to the other cities I studied, it has comparatively small and less organized advocacy, and the structure of the city as it stands today through the overlaying of many historical processes does little to support cycling for transportation. Yet at the same time Baltimore still has a vibrant cycling community, with a centrality placed on cycling events that was not always the focus of discussion during my time collecting data in Boston or Washington DC. As such cycling in Baltimore “cuts across and assembles a number of sites, whether through the body, the city or elsewhere (Jeffery et al, 2012, p. 1264), which in their complex interaction just serve to highlight the informality of urban governance when such an aggressive program of government retrenchment has taken place (Ponzini and Rossi, 2010). I believe cycling could play an important role in changing how people experience the city in a more equal and just manner. However this positive potential for cycling in the city is dependent on a broader set of social and spatial changes, as well as the forms of urban governance. Cycling has an open potential for the city, as a cheap and relatively unrestricted form of mobility to gain new found access. However this will only be realized if cycling is not drawn into becoming purely a means for boosting economic production in the city and an expression of a specific class, race and gender moral objective. For cycling to bring positive change to the city it cannot be solely directed at the “cultivation, attraction, and pampering” of an urban creative class and industry, necessary within a pervasive belief that cities need to “find these creative people and manufacture these spaces [to

attract and support them] or die” (Wilson and Keil, 2008, p. 841). The assembled complexity of the BBP, and other connected events demonstrates that this is not the only role for cycling in Baltimore, yet what was also demonstrated was that attempts at co-opting events like the BBP into this creative neoliberal process is a constant threat. Conceptualizing cycling as a part of the city as assemblage is not to suggest that certain actors cannot unequally impact upon and benefit from the assemblage, but that powerful actions are often reliant upon the emergent outcomes of impromptu associations made between sometimes disparate actors. As McFarlane (2011a) suggests “the spatialities and temporalities of urban assemblages... can, of course, be captured, structured and storied more effectively and with greater influence by particular actors or processes than by others” (p. 208). Yet at the same time the city as assemblage is always emergent, in process, and open to reformation across new spatialities and temporalities. Neoliberal creative urban governance functions less through a totalizing and structuring plan, but through adapting to and co-opting assemblages. Thus as Baltimore's municipal governance has ceded its centralized managerialism of the city, it attempts to assemble actors in service of its visions of the urban, or associate with actors in a manner that services the neoliberal tenets of its governance, and its goal of creative regeneration.

Baltimore continues to be influenced by cycling, through the formation of a distinct community, the proliferation of cycling and broader urban policies, as well as its various (if limited) infrastructural investments. The accounts provided above do not provide an enduring framework of what this influence will continue to be, but it speaks to what these effects have been, as well as providing a model through which to

map the formation of the urban assemblage in the future. As Latour (2007) states “As soon as a site is placed 'into a framework' everything becomes rational much too fast and explanations begin to flow much too freely” (p. 137). Therefore this chapter instead offers close discussions of the minutiae that makes up part of Baltimore's becoming, informing the broader formation of the city. This then is a continual process, resisting an attempt to give an easy answer to what Baltimore is, and the role cycling has, and will play. Instead it encourages further investigation through an appreciation of the complexity of how the urban is formed. It is an approach that makes commentary on the real moments of marginalization and class, race, and gendered marginalizations in this case, but is compelled to resolve these into a linear history of causality. It is necessary to leave some of the messiness of urban life in the analysis “because that is the inherent nature of the world itself: messy” (Ruming, 2009, p. 453). Through adopting an approach that is oriented to the modest abilities of research, and that embraces messiness as the fundamental ontology of cities, the complexity is not lost in attempts to craft overarching stories and answers.

Chapter 4: Washington DC – being affected/riding through the city

Introduction

It has been demonstrated to this point that cycling within a contemporary US urban setting plays multiple roles, has been invested with complex layers of meaning, has become a central concern – with particular intensity in the last four to five decades – of policy makers, and has functioned as a node entangling associations between various actors in messy and complex manners. However these are not the only roles cycling plays in the city. What I will demonstrate throughout this section is that underlying, and overflowing from all these enactments of urban cycling is a non-representational, extra-cognitive, or affective dimension. There has been a “fixation on the instrumental and ‘rational’ [that] has been at the expense of the more intangible and ephemeral; the sensory, emotional, kinaesthetic and symbolic aspects of cycling” (Spinney, 2011, p.164). This section of the project seeks to break this fixation by taking “seriously the complex interplay between movement, its representation and the embodied experience” (van Duppen & Spierings, 2013, p. 234). As the previous chapter demonstrated the city exists as an assemblage of various actors, being the confluence of a number of simultaneous associations. This chapter takes another step, suggesting that a layer of “prepersonal experience” supplements these associations that are emergent of our relationality with various human actors and non-human material environments (Thoburn, 2007, p. 83). Thus embracing any form of affect theory “has the advantage of opening up rather than

closing the range of empirical social research; it allows, nay encourages, us to take environmental factors into account, as preceding prevailing anthropocentric approaches have seldom done” (Seyfert, 2012, p. 41). It is an attempt to merge “two collections of analytical objects that have been conventionally kept apart – namely ‘the social’ and ‘the biological’ – and in so doing addresses real issues about our fundamental understandings of what constitutes the work of the world” (Thrift, 2009, p. 79).

Cycling is not the only route through which to access the affective dimensions to the lived experience, or those particularly bound up in the physical, the mobile, or the urban. However, within the city it is “both the journey and the travelled spaces that are ambient and have a ‘feel’ and which affect the moving subject’s experience” (Jensen, 2013, p. 221), so that cycling certainly serves as a unique and important sensual practice through which to explore these ‘feels’. As Jones (2012) points out “The affective intensities of cycling are particularly acute and run counter to the tendency within motorised transport to try to discipline and regulate the sensory stimulation to which users are exposed” (p. 655), or indeed any activity which enforces sensory discipline or confines these experiences to commodified logics. Certainly “In the experience of spaces, sensuous encounters between the subject and the urban materiality play a key role” and for a cyclist this at times can be more tangible compared to other forms of urban mobility (Jensen, 2013, p. 221). This accentuated affective dimension to cycling is proffered as a point of discussion not to suggest that those involved are all sensorial ‘adventure seekers’ within the urban, nor that they are romanticized practitioners of a resistance to forms of discipline and

commodification through these sensorially raw acts (Jones, 2012). Instead it does suggest that cycling is a form of movement about the city, which is in more immediate contact with the materialities of the city, broken out of a metal and glass cocoon. In other words “both driver and cyclist are having their experience of the world constructed through the sensory, but the affective intensity of that experience is very much greater for the cyclist because of the exposure to a much less managed and more varied sensescape” (Jones, 2012, p. 651).

The research carried out in this chapter speaks to these extended affective dimensions of cycling in the city, tying together the process of policy-making, within and upon the urban as assemblage. The data collected will not lead to a comprehensive, coherent or complete formula to the study of affect, or the particularities of the affective dimension to urban cycling. However, it will do three important things: firstly it will push forward the methods to a study of the affective, taking steps forward from the work of Jones (2012) by taking on a study of the sensorial experiences of riding in the city beyond the recorded field notes of cyclists; secondly it will record and discuss, if only partially, some of the particular affective experiences a rider can have whilst riding within Washington DC specifically; and thirdly these inquiries will help inform comment on the connections between these affective intensities and urban design, as well as policy, in production by various actants – policy makers of various kinds. Ultimately, then, as Jensen (2013) states:

In particular, cycling subjects encounter and make sense of the cycle track designs via the sense-scapes, the discursive meaning of cycle mobility, and

local cycling mobility cultures. Such emotions and sensory experience of mobile spaces are targeted and worked upon in urban plans, through assuming mobile subject's desires and through shaping mobile spaces in the image of these assumptions. Significantly, this shaping is only partly intentional – the experiential dimension, emotional register, and representations of mobility mobilised by particular urban designs and mobility systems have implications for real moving urban people beyond the intended (p. 222).

Thus Jensen (2013) is particularly informative as she highlights the need to pay attention to the affective dimension of this physical cultural practice. However, she also highlights that whilst affective experience is not a direct effect of urban planning, researchers need to study the materializations of policy-making as they have the potential to be a major factor in the political, social, and pre-personal experiences of the city.

This is an experimental form of investigation. It is not completely novel theoretically, methodologically or empirically in parts, but through the combination of many methodological techniques, a broader project emerges to be original. There are indeed some ontological limitations to what can be commented upon, and to what extent. As such although “The pain of torture, or a distance runner hitting ‘the wall’ or self-harming can be described by those who have experienced them” this will always be “something fundamentally different from the affective response itself” (Jones, 2012, p. 648). However, this realization is not enough to stop the empirical study of affect, or the pursuit of more nuanced investigation of this dimension to all

of lived experience. Our experiences and interactions often overflow language and have a dimension that is extra to the cognitive process. It may be necessary to “learn to offer concepts that are equal to the ambiguity of affective and emotive life” whilst partaking in the study of affect, but this should not be a barrier to utilizing various forms of research into affect (Anderson, 2009, p. 78). The study of affect through empirical investigation, even if always incomplete, is necessary to speak in more complex and nuanced manners to the relations that underpin all of life.

Policy, both intentionally and unintentionally, embeds particular attempts to control the urban setting through “the modulation of ‘dividuals’ – sub- and trans-individual arrangements of matter and function (forces, genetic codes, affects, capacities, desires)” (Thoburn, 2007, p. 83). Urban governance not only relies on the influence of symbolic and cognitive engagements of urban populations, but appeals to the emotional or the affective. This chapter then extends the macro political, and meso community level analyses developed earlier in the project, through interrogating the affective impacts of policy in its materialization, but also how this becomes disrupted as it is experienced in the simultaneous association with all the other actors and environments in the city assemblage. Affect is the outcome of very real material, social and symbolic dimensions to the city, so that whilst it may be hard to define and 'capture' through analysis, it “is an experience of intensity... that changes the state of a body,[and] that has concrete effects on individual and social practice” (Thoburn, 2007, p. 84). Certainly cycling is embraced within the neoliberal creative city as it appeals to the discursive climate of green, healthy, and financially responsible living in which their target creative class population exists, but it also appeals to this group

as “They cycle in large part because it feels right to do so” (Cupples and Ridley, 2008, p. 260). Cycling policy, infrastructure, and programs not only appeal to the cognitive engagement of its positive potential, but effects users as it ties into affect resonances as they are contoured in part by the governance, planning, and lived communities of cycling. Thus I explore the affective outcomes of attempts to attract the creative classes through cycling, and the moments in which this is disrupted, as both necessarily underpin the symbolic and cognitive political and social effects of cycling on the urban formation. As such this chapter interrogates the affective outcomes of these uneven patterns of design, and whether they extend the imbalances of neoliberal informed governance around cycling into this non-representational plane. As Cupples and Ridley (2008) suggest “the affective dimensions of cycling which include how people feel about it as practice and experience are important” as it also contributes to “whether cycling is experienced in a positive, negative, contradictory or ambivalent way” (p. 261).

Introducing 'The District': patterns of cycling development within a unique urban setting

Washington DC has been affected by many of the same patterns of urban development that other cities in the U.S. have faced. As Gibson (2013) states “Like many US cities, the District had been bleeding population to the suburbs and beyond for decades”, and has responded most recently through a “push to woo the creative class” (p. 8). Despite these similarities there are some key differences due to the cities position as the nations capital. This has meant that the city is organized in some very

specific ways and includes a unique set of actors as well as associations between them, such as the existence of “The DC Bicycle Advisory Council... a group of bicyclists appointed by the DC Council to advise District government on bicycling issues” (DCBAC, n.d.) that is unique between the cities I have studied. Many of these actors in some way further marginalizing associations with cycling, but this is not to deny the existence of groups and events such as 'Black Women Bikes D.C.' that serve to also challenge class, race, and gender hierarchies. As with Boston and Baltimore, Washington is an assemblage of complex, multiple, and sometimes contradictory elements, yet the particular political structures and social formations in the District mean the city in many ways poses a distinctly novel setting for study.

The history of cycling policy in DC, and its region, has followed the general phase changes identified in chapter two for Boston. Initial policies regarding cycling in and around DC were rolled out in the 1970's, but they “were often limited to specific corridors or were part of other planning documents, such as comprehensive plans or transportation master plans” (Buehler et al, 2011, p. 15). This meant that programs and infrastructural development during this time mimicked the informal and marginal nature of the policy. In line with federal shifts towards intermodal transportation planning in the 1990's “interest in bicycle planning reemerged at regional and local levels” where the “[Transportation Planning Board for DC] TPB published its regional vision for bicycling in 1998” (Buehler et al, 2011, p. 15). Following this formalization of policy at the federal, and then regional level in the 1990's, there has since been a greater refinement of policy with the bicycle master plan for the city being introduced in 2005. This looks to be expanded upon in the

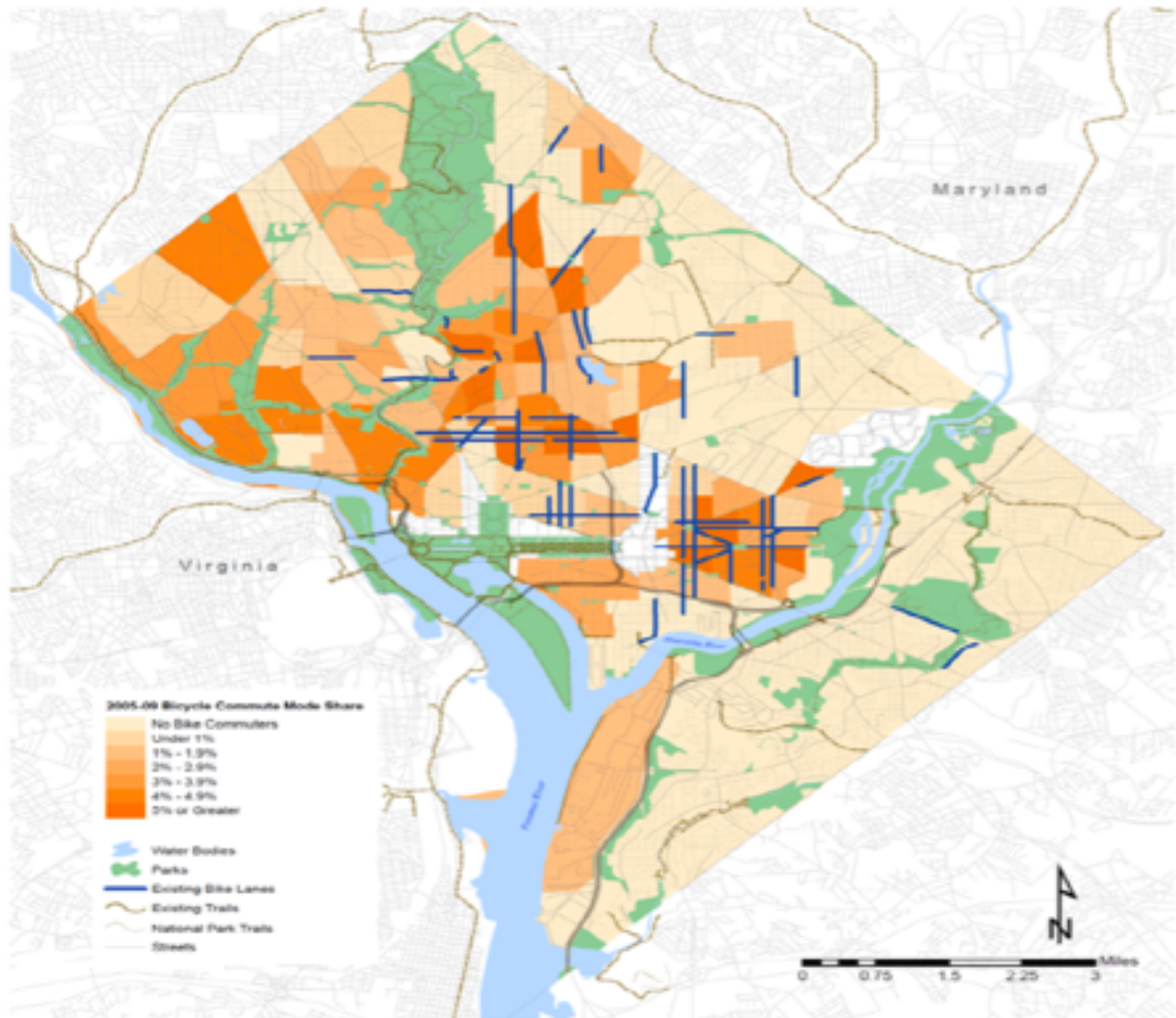
spring of 2014 with the introduction of the MoveDC intermodal transportation plan for the city, a multi department policy plan headed up by the District Department of Transportation (DDOT) (wemovedc.org, n.d.).

Despite many of these similarities DC has also seen a relative outstanding governmental investment in cycling infrastructure compared to the other cities I have studied, resultantly changing the structures around cycling. The city still hosts cycling events around the city, but these are less central to the cycling community in the city than compare to Baltimore. Unlike Baltimore bicycle trips are dominated by commuting where “Washington’s share of weekday bike trips that are work-related (41%) is more than twice the national average for urbanized areas” making this a greater focus in the city (Buehler et al, 2011, p. 11). In addition DC has a bigger cycle-hire scheme that was implemented before the Boston Hubway system, however the Capital Bikeshare does not have the same public-private structure, with no title sponsor for the system. This relatively high government investment in infrastructure, oriented around the high commuter numbers in the city sets DC apart, and would seem to buck the neoliberal trend in urban governance towards “fiscal austerity” (Brenner and Theodore, 2002. p. 361) and “welfare state retrenchment” (Posey, 2011, p. 299). Instead, whilst still being a relatively unique approach to the governance of cycling in the city, I believe it has shown a period of 'doubling down' on utilizing cycling as part of the re-invention of DC as a creative city. Led by former Mayor Adrien Fenty, this investment has shown a greater concentration on cycling in creative city policies as an “extension of the frontiers of neoliberalisation” (Bunnell, 2013, p. 6). As with many other cities “Washington DC is certainly no exception in

this push to woo the creative class, and cycling has played a prominent role in these efforts over the past decade” (Gibson, 2013, p. 8). However, this commitment to invest in cycling as a means to attract the creative classes was cemented with the arrival of Fenty “An avid cyclist and competitive triathlete... along with [his] Transportation Chief Gabe Klein and Planning Director Harriet Tregoning, both devotees of smart growth and new urbanist planning” (Gibson, 2013, p. 9). The arrival of this new political power structure “placed bicycles at the centre of the city’s transportation and urban development agenda” (Gibson, 2013, p. 9). Boston and Baltimore have both invested in cycling as part of their creative city initiatives, but both have taken routes that rely to a greater extent on public-private partnerships, and in Baltimore's case a reliance on volunteer groups to organize events.

Under Fenty “miles of additional bike lanes and trails” were built, and he “spent \$4 million on a striking new Bikestation parking facility at the Union Station (a figure that works out to about \$26,000 per parking spot)” (Gibson, 2013, p. 9). Much of this investment has focused on middle to upper class, and rapidly gentrifying neighborhoods, “especially those close to downtown, the Capitol and [those that have] opportunities for hipster nightlife (such as Columbia Heights, Shaw, Logan Circle, and Adams Morgan) [which] have seen a rapid turnover in residents and a jarring amount of redevelopment and change” (Gibson, 2013, p. 10). As Fig. 10 shows, much of the implementation of infrastructure in the city focuses on off street paths around the Potomac River in Georgetown and surrounding neighborhoods to the west, emerging neighborhoods to the north, and residential spaces surrounding Eastern Market in the near southeast. Poorer communities, especially majority

“African-American neighbourhoods East of the Anacostia River, [that] have become even more distressed over the past decade” along with spaces to the northeast, show



little infrastructure and with it low participation numbers.

(Figure 10. Washington DC infrastructure and participation rates; Buehler et al, 2011, p. 19)

Certainly there are a multitude of other factors that play a role in the implementation of cycling infrastructure, and there is even more complexity in the

differences in participation rates around the city. However, what cannot be ignored is that these decisions have been made in a context where “the goal of attracting new residents with messages about the new ‘livable’ Washington was never far from the surface” (Gibson, 2013, p. 9). The perception of the targeted and uneven investment in the cities cycling infrastructure has become a lightening rod for wider concerns with a pattern of displacing gentrification “discussed as not merely the rich displacing the poor, but rich (and young) whites displacing poor (and older) blacks” (Gibson, 2013, p. 10). As Gibson (2013) goes on to discuss “over 50,000 whites moved into Washington DC between 2000 and 2009, representing an increase of nearly 30%,” (p. 10), intimately tying the growth in cycling infrastructure and participation into the perceptions of the cities changing racial and classed landscape.

Cycling in DC has in many ways been shaped by similar broad trends in local, state, and national oriented cycling policy, in constant negotiation with a trend towards neoliberal and creative city patterns of urban governance. Yet it stands out from the other cities studied in this project as the government has to a greater extent been involved in a pattern of investment in cycling infrastructure in the city. This has demonstrated lesser fiscal austerity than many other U.S. cities, but the particular modes and pattern of the investments, in particular under former mayor Fenty, show a commitment to designing cycling for attracting a creative class, their industries, and broader patterns of urban regeneration (Ponzini and Rossi, 2010). The result of this uneven pattern of investment has been a patchwork of infrastructure and associations between various actors. The cycling environment, and its resultant effects of the structure of the cycling community, is intimately tied to historical and contemporary

urban process that have created complex and often contradictory experiences of cycling in the city. As such this analysis of cycling in DC has explored the ways in which these macro political and meso level social patterns have also led to an uneven affective terrain. The affective experiences of cycling are resultant of the interaction of multitude human and non-human factors. However, a central dimension to the relational experience of riding a bike in the city is dependent on the cycling infrastructure available as “while the city may be physical, it conjures powerful emotions as well” (McGaw and Vance, 2008, p. 65). Thus the creative city informed construction of a city’s spaces impacts the non-representational dimension of urban cycling. Studying cycling and affect furthers the understanding of the impacts cycling has had on the formations of cities, as their organization has increasingly formed around particular visions of cycling. Washington DC's infrastructure and cycling community has been the outcome of a particular classed and racial vision of cycling, this chapter explores how these come together in particular ways so as to create intended, and sometimes unexpected, affective as well as emotional responses to riding in the District.

Defining affect

At the end of the last century and into the early 21st century theories of pre or extra cognitive experiences and interactions have been in the shadow of scholarship by those working in a structuralist or post structuralist linguistic mode. This in turn has led to a dearth of “cultural-theoretical vocabulary specific to affect” as “Our entire vocabulary has derived from theories of signification that are still wedded to

structure even across irreconcilable differences” (Massumi, 2002, p. 27). Indeed “many sociological approaches and methods tend to ‘deal poorly’ with dynamic and transient subjects and in particular the senses” (Jungnickel and Aldred, 2013, p. 7). This has similarly been the case with much of the socio-cultural studies of sport and physical (in)activity. The physical entails experiences where “sound mingles with smells, with perceptions of body movement and skin sensations – with tactile, olfactory, sensorimotor and even gustatory schemes of interpretation” (Saerberg, 2010, p.371), seemingly encouraging study of the aspects of the physical. However, the primary focus of disciplines like the sociology of sport has been on the lingual and symbolic dimensions to the political, economic, and cultural outcomes of these practices. Resultantly a new exposure to work concerned with affect could be seen as a turn towards these non-representational theories. This turn has widely been labeled as an affective turn with many of the variations of approaches to the pre or extra cognitive, as well as the transhuman, being labeled as affect theory (Clough & Halley, 2007). Hardt (2007) compels us to consider this turn, in the foreword to *The Affective Turn*, to be “Like the other “turns” that academic fields have undergone in recent decades – the linguistic turn, the cultural turn, and so forth” suggesting that “this focus on affects consolidates and extends some of the most productive existing trends in research” (p. ix). However, these theories as they become subsumed under this term, and those using them get viewed as taking this turn, we must be wary of an assumed monolithic nature. Indeed there are varied approaches to affect drawing from widely disparate fields (from psychology, English, cultural studies, physics and many more) and these theories also blend into other areas such as post humanism,

complexity theory, science studies, and actor network theory, creating a messy and ever shifting aggregation of approaches.

Due to this existence of a wide and varied set of approaches to affect, it is important to offer the particular conception of affect that will be utilized in this project. Affect, as understood in this project, can be seen to fall within a lineage that stretches from Spinoza to Deleuze, Massumi, Simondon and many others. As such the particular theoretical and ontological framework that runs through these scholarly works has informed my particular conception of affect. Affect, as it informs the particular forms of analysis in this chapter, can be defined as:

Affect being the process of impacting upon and being impacted by other actors (human and non-human) in a wholly relational manner. Specifically I use affect to refer to this relationality as it happens in a manner that is non-representational, non-cognitive and outside of language. Certainly affect in part is produced by conscious as well as ideological actions and intentions, but it is not wholly bound to these planes. The ability to affect is not universal, and the ranges of intention and action that differing actants are capable of creates “power geometries” (Tolia-Kelly, 2006, p. 213-214), which will create an uneven distribution of any human or non-human actors ability to affect and be affected. Affect, then, is not an emotional state in the psychoanalytic sense, a state that emerges from the psyche to be conditioned or evoked. It is an exterior and always-relational outcome, one that is secreted through a complex and emergent moment of interaction.

Affect is a term to describe that dimension which is hard to describe, a plane that is present in every point of contact with the always-present assemblage of human and non-human actors in every moment of the lived experience. It is “an intensity which is the result of the relative movements and interactions between things” which “gives rise to less-than-fully conscious experiences... manifest on a somatic register as vague but intense ‘atmospheres’ or ‘vibes’” (Andrews et al, 2014, p. 18). Affect is a term that is used to imprecisely discuss “Intensities that are only imperfectly housed in the proper names we give to emotions (hope, fear and so on)”, where emotions are already an ad hoc conscious modulation, or apprehension, of the affective (Anderson, 2009, p. 77). As Saldanha (2010) discusses “it is more than the ‘emotion’ of psychology or the ‘consciousness’ of phenomenology” (p. 2415). It is a dimension to social life – using social here social in the broadest sense that Bennett (2010) puts forward, or that Andrews et al (2014) suggest stretches from “from atoms and molecules to fully formed human bodies and non-human objects” (Andrews et al, 2014, p. 18) – that is specific to those ‘things’ present in any moment. It informs, opens, and impinges upon becoming so that this Spinozist informed “concept of affect allows for understanding interactions as underneath human, heterogeneous, and productive” (Saldanha, 2010, p. 2415), whilst always being relational, emergent and therefore unpredictable.

Affect and cycling

Cycling in the city has at times proposed a form of urban physical practice that has proven challenging to those variously invested in the governance of

conurbations, but especially forms of municipal government. Cycling has the potential to spill over from both ways in which expression, sensorial experience, and risk in movement have become regulated and restricted, or conversely commodified. It has the ability to exist in ways beyond the intended affective resonances engendered in policy, and its materializations, as it is planned to appeal to and further regulate the desires of a creative class. As Kidder (2009) explains:

Bicycles are smaller and lighter than cars, and can be parked almost anywhere. They are also more maneuverable, allowing riders to weave in and out of gridlocked traffic. Unlike mopeds and motorcycles, the bicycle's ambiguous legal position also allows its riders to travel on sidewalks and go the wrong way down one-way streets. For these same reasons, cyclists can also run red lights by skillfully maneuvering between the (relatively small) spaces separating moving vehicles. Such actions are officially prohibited (and clearly dangerous), but legal enforcement is inconsistent and minimal at best (p. 314).

Bicycles exist beyond the constraints and expectations of our regulated street spaces. Increasingly Bicycles are being brought into spaces of regulation and the purview of rules, yet the bicycle still offers an experience across the city that continues to overflow a disciplinary envelope, even in its banal and sundry practices. As van Duppen and Spierings (2013) discuss that for those riding bikes for transport “Several tactics reflect a disregard for traffic rules” and that “Cyclists have developed skills on when and where to run the red lights and take informal or even illegal paths”

(p. 242). In this sense cycling overflows laws, space, and affective regulations. It breaks people out of their 'carcoons' (Wickham, 2006) and forces them in the sensorial rawness of the street. Unlike recreational practices that center on a sense of excitement/fear that derives from their moments of sensory intensity, cycling in the city has been hard to completely regulate, restrict, or commodify. Although attempts have been made, and are ongoing, to bring urban cycling's sensorial rawness under supervision or commercialization (building off-road bike lanes, mandatory helmet laws, bicycle insurance, cycle hire schemes, etc...) urban cycling cannot be restricted to non-street spaces in the city, or fully commodified settings that has been the case with other affectively raw physical activities – for example various 'extreme' sports practices. Urban cycling has the potential to be dangerous, creative and sensorially indisciplined (Jones, 2012). In other words the bicycle can provide the other side of the machinic assemblage to our corporeality's when riding a bicycle, through which those that dwell in the polis can overflow the envelope of control through cognitive acts of resistance in events like Critical Mass, but also through the simple unexpected moments of affective interaction with the shifting elements of the urban assemblage. Cyclists, through the act of urban riding, engage with all elements of the city, folding them “into his/her experience of the city” (Jungnickel and Aldred, 2013, p. 8), it then offers a mode of mobility that is less predictable and regulated opening up greater and more emergent affective resonances. As stated, this in turn has resulted in a proliferation of tools through which attempts have been made to discipline this physical cultural practice, not only through ideological reproduction of the model 'responsible cyclist', but also through forms of spatial organization as well as lawful

control to alter the affective intensities that can resonate out from the bicycle, and the act of cycling. Where the bicycle's potential to pour over from forms of containment abounds, it disrupts the argument at the heart of bicycle advocacy and policy, it has the potential to be dangerous and threatening to the health of cyclists and those around them. In response there has been a use of a multitude of planning and spatial techniques to make cycling 'safe', appealing to the assumed desires of the creative citizens they wish to attract through providing this amenity. Bike lanes, paths, policy and legislation have increasingly impinged upon the potential for affective intensity, and at the same time brought cycling into a form of practice that aligns with the health based reasoning for cycling's inclusion in the urban fabric of the U.S. and many other nations. As Jones (2012) states "commuter cycling enacts a tension between a policy landscape that encourages 'sustainable' modes of travel, and a set of affective intensities more commonly associated with undesirable, illicit or highly regulated/commodified activities" (p. 646). This attempt to regulate, or at least commodify the cycling experience can be seen where the City of Boston enforced that "Messengers are subject to a criminal record check and must carry liability insurance" (Boston Transportation Department, 2001, p.19). For some in the US this attempt to bring cycling into the insurance process should be inclusive of every cyclist, but the logistics of applying insurance to everyone that rides a bike may be too difficult to ever bring this to fruition. It is thus the very nature of cycling in the city, as active transport and recreation, which has provoked the use of diverse material and symbolic tools to ensure a particular type of cycling. However, it is also this very ability of cycling to challenge attempts of governance ideologically and affectively

that positions it as so valuable in the modern cityscape. All forms of cycling have the potential to expose the openness of the city, even the most mundane routinized riding, as “it is harder, if not impossible, to reduce the heterogeneous network of actors in the cyclist’s path. Most, if not all, of the multi-sensory cacophony that comprises urban life is out of the control of the cyclist; and has to be enfolded into the journey” (Jungnickel and Aldred, 2013, p. 8). But if we push further, it is those forms of cycling that continue to eschew attempts at discipline and evade the more structured forms of capitalist incorporation that continue to be even further outside attempts at regulating or governing urban life. The cyclist whom runs a red light, to those competing in illegal street races (alleycats), all the way to those on BMX or FGFS bikes that see the city as the ground for expressive play, all deviate from the main focus of cycling policy and advocacy. Yet it is these groups that are at the extreme of “Being ‘out there’” as they are constantly “exposed to urban sights, sounds, smells, feelings and tastes in ways that differ from the experiences of car drivers, car passengers and users of motorized public transport” (Jungnickel and Aldred, 2013, p. 9), and even differ from those that cycle within the 'safe' spaces of the city in responsible ways. All cyclists are “exposed to a broader sensory landscape” (Jungnickel and Aldred, 2013, p. 9), but many cycle in ways that go further, either through choice, or by necessity as they are provided little of the infrastructure that can protect them from the flow of the street.

Based on this affective dimension to which cycling can provide an intimate and particular means of access, there becomes a clear imperative to discuss that which is extra to the ideological, semiotic, or representational. It becomes important not

only as a dimension to explore for a clearer understanding of the ways in which ocular forms of governance, discipline and power can be further complicated and disrupted, but as Jones (2012) directs us:

The senses sit at the blurred boundary between body and environment and can be seen as a key mechanism through which power acts on the body of an individual (Simonsen 2007). As such, discussions of the sensory can be usefully brought into dialogue with the concept of affect and the disciplinary potential of affective landscapes (Adey 2008) (p. 645).

Indeed the other elements of our sensorial existence can open often ignored paths to resistance, or at least fleeting moments of subversion, however these planes also function as spaces of governance and power themselves. Indeed these various sensorial planes, and the moments of affectivity that flow out from them, are often emergent of attempts to enforce control. Although this is not to ignore that any affective control can only ever be in part. Certainly Jones (2012) points to the very real forms of sensorial discipline that enacted in contemporary western societies, but moments of affective interaction will always escape this control. There is very little control of our ability to be affected by this interaction, although we may be constantly involved in an ad hoc process of modulation to various points of affective intensity, which is always culturally informed. As such I agree with Jones (2012) that “An apparently mundane activity such as cycling to and from work can be an intense sensory immersion” (p. 648) proliferating multifarious points of affective intensity

that proliferate throughout various dimensions of the act. However, unlike Jones (2012) I do not believe that these same physical practices can be “so intense, in fact, that it runs up against the affective limits of many individuals’ bodies” (Jones, 2012, p. 648). Indeed a moment may be so affectively intense that we do not have the means through which to process that moment or event, leading us to remove ourselves from it, but we will always be affected by those other actors and environments that we are in relation to.

Jones (2012), as with others who have written on cycling and affect, draw on a spatial and relational approach to affect, that draws on Spinoza, through Deleuze and Guattari in particular to consider affect as resulting out of “spatial and temporal transformations which resist the reading–writing–text paradigm” (Thrift, 2004, p. 74). When utilizing Navarro-Yashin's (2012) division of those concerned with the affect as an interior manifestation of the psyche and those with that consider it an effect of exterior relational process, this Spinozian informed tract falls firmly on the latter side of that split. As such for Jones (2012) as with other exterior focused, 'naturalistic' approaches, affect becomes radically relational and situational, an emergent and overflowing dimension bound up in the interactive moments of lived experience. In other words it is a sort of intensity that variously underpins or extends beyond the ideological, the representational (Masumi, 2002).

Cycling within the urban setting then becomes tied into the affective resonances of the city. In studying cycling's affective intensities in Washington DC I have embraced a means through which to begin to grasp at the non-representational or pre-personal that underpins, and overflows, from the political, symbolic, economic,

social, cultural, and infrastructural landscapes that make up the city in its multiple iterations (Farias, 2010). The city, through new forms of “urbanization and urban praxis is being radically transformed, arguably in historically unprecedented ways” (Wachsmuth et al, 2011, p. 741), changes that Thrift (2004) sees as resulting in “affect [being] more and more likely to be actively engineered” (p. 58). Thus the analyses I have carried out contribute to an interrogation of the affective experiences of riding a bicycle in DC, and whether these conform to the intensions of these radically new forms of urban governance that engage with cycling.

Affective methods

Through the utilization of the particular thread of affect theory which derives from Spinoza and can be tracked through to Deleuze, I have sought to explore the ways in which cycling is an urban practice that resonates beyond the representational. As Jensen (2013) suggests “The emotional [insert affective for emotional, the author uses them interchangeably throughout] experience of space and place may be seen as the ever becoming interaction between subjects (or other things of the world) and their surroundings” (p. 221). Thus, I look to discuss the ways in which cycling provides a practice through which we can affect and be affected in multiple registers as we interact with a range of actants, in the Latourian (2007) sense. As discussed, this conception of the affective focuses on the non-representational dimensions of the ways in which we experience our moments of relationality with all of the assembled human and non-human actors within any given moment. Every moment within the city we are in contact with people, organisms, discourses, images and materialities,

the combination of which results in a particular affective resonance. By affective resonance here I am referring to the dimension of the ways in which we are affected by and affect upon this aggregation, or constellation of actants that is in particular extra-cognitive, and therefore spills over our systems of ideology and language. Intentions to contour the affective will always have a considerable impact, but will always be partial due to the complex nature of the assemblage, where multifarious actors and environments are associated in messy ways. As such an undeterminable set of actants will play a role in the outcome of any affective resonance. Affect then is truly relational, and therefore will overflow the intentionality of any one individual. We engage these resonances with a multitude of senses, touching, smelling, hearing, seeing, every situation whilst always trying to modulate these sensorial experiences through a language of emotions (Andrews et al, 2014; Masters, 2010; Venn, 2010). The multitude of senses, existing between our body and others, becomes a more nuanced, if yet still blunt tool through which to experience and explore the affective resonances of any moment. Thus despite its always existing limitations it is this point through which I have attempted to construct a method to engage the affective, that is the resonances of relational interactions between various human and non-human actors. By utilizing various technologies I have recorded various sensorial responses to riding a bicycle within the city. I have recorded video, sound, emotive field notes, heart rate, and galvanic skin response. Each set of data either detailing the emotive modulation of affect, or providing a rough approximation of a dimension of sensory response to the affective as a “constant self-refreshing of bodies through their inevitable sensory and proprioceptive embedding in the world” (Saldanha, 2010, p.

2414). These do not in themselves directly or wholly capture the affective resonance of riding my bicycle in the city, nor do they capture it completely in combination. However, through their bringing these techniques together I have attempted to further explore the affective dimension to cycling in the city, that is somewhat impacted upon by the multiple materialities, policies, programs, discourses, social groups, and odd associations that shape the city beyond the ideological.

This is an experimental method, but I have taken it up as a means through which to speak to the affective beyond the purely philosophical, whilst being equally wary of the positivistic biological or psychoanalytical approach to measuring a definable response. I am very aware that the affective will always shy away from comprehensive conscious knowing. Due to the definition of affect I have used I am researching something that will always be extra to our cognitive grasping, and the ways in which to representationally engage with it. However, the affective will always play a role in the social and cultural, and therefore it will always be imperative to attempt to apprehend this dimension to life. As a result of these considerations I have taken on modes of research to partially capture the affective, going beyond a philosophical discussion, but also I have not used this information to carry out quantitative analysis in a belief that I can somehow measure the affective resonances definitively. Instead it is through the qualitative analysis of these sensorial and emotive recordings that I hope to be able to make some comment on the affective resonances of cycling in a city. It is through these methods that I “approach sensory experience as a dimension of the emotional intensity of urban subjects, intimately linked to mobilities through the body’s sensory register and evoking socio-cultural

dispositions for future mobile practices” (Jensen, 2013, p. 221). It is an attempt to crystallize towards affect, utilizing techniques that locate each response and attempt to capture an account of the point within the assemblage of the city within which these resonances happen. As Saldanha (2010) suggests this is an “intrinsically geographical [study], as it requires tracing a body's encounters with objects, conditions, and other bodies, which are possible only in particular places” (p. 2414). Thus each data source contributes in attempting to capture some sense of an affective resonance as it is located within a particular space and time. The information captures location of the response to the affective, capturing the presence of bicycle, weather, cars, pedestrians, paint, plant life, cracks in the road, curbs, imaginaries of the cyclist, and many other factors that make their presence felt. Each point relates a particular emotive modulation, biometric response, to a particular place and the presence of certain actors as well as environments.

Data collection techniques

To capture these data that will inform my analysis of the affective I embarked on several 'rides' around the city. Each ride took a unique route through various segments of the city, a multitude of streets, and cycling specific street design. They happened over several days and in various weathers. The data is limited to several rides in one city, as a truly experimental analysis even this scope of data collection was challenging. This challenging nature of the data collection also limited the data recording to myself. As Spinney (2011) discusses “Urban cycling holds unique challenges for the mobile researcher in that it largely precludes the ‘ride-along’

method (see for example Palmer, 1996; Spinney, 2006; Brown et al., 2008) due to the hazards of riding in the city and the unique skills and styles displayed within different cycling cultures” (p. 163). Certainly in future studies this experimentation should be carried out over greater distances, with more repetition, and with a broad range of participants to build a broad and deep conception of the affective experiences of the city. However, despite this desire to expand the study in the future, this data collection is still valuable to inform my study in a meaningful way in this first attempt to do more when studying affect. This self study approach is an important first step as “Given that cycling is tied up with bodily resources, or affective capacities, the researcher will get a richer understanding with autoethnographic participation”, or (auto)multi-method study (Larsen, 2013, p. 11). The study of myself as the cyclist provides rich accounts, and an initial relative ease of study with a still experimental method of research.

For each ride I was equipped with these recording devices:

- GoPro HERO3+ Silver Edition
- Garmin ANT+ heart rate strap
- Garmin 500 GPS capable bike computer
- Neulog Galvanic Skin Response sensor (GSR)
- Olympus Digital Voice Recorder WS-500m

These recording and measuring devices were supported by several other pieces of equipment that helped store and transfer data. These supporting devices were

- Apple Iphone 4s (installed with Neulog WiFi recording application)
- Neulog WiFi communication module WiFi-201
- Neulog Battery module BAT-200
- Apple Mac laptop
- Microphone

For each ride the GoPro camera was connected to the top of a bicycle helmet that was worn throughout each ride. The heart rate monitor strap was placed around the chest, and would feed data into the Garmin 500 unit. The Garmin unit was attached to the stem of the bicycle and would collect GPS data through satellite triangulation that would not only provide specific positioning, but also speed, temperature, and elevation. The digital voice recorder was connected to the microphone that was worn to be near the mouth, requiring no hands for recording field notes. The GSR sensors were attached to the index and middle finger of the right hand, following normal protocol for the device (Neulog, n.d.). This unit was then connected to the battery unit and the WIFI unit that was stored within a jacket. This bundle of units was then connected wirelessly to the Iphone 4s that stored the data that was streaming from the GSR meter.

At the beginning of each ride GPS connectivity, heart rate connectivity and GSR connectivity were ensured. Once these connections had been confirmed the GoPro and digital voice recorder were initiated. At this point the GSR and Garmin head unit were started simultaneously to ensure time points would match between

these devices. The starting of the Garmin not only initiated GPS recording, but also heart rate, speed, temperature, and elevation recordings. At this point I would begin riding, taking intermittent voice notes describing the situations I was experiencing and the approximations of emotions felt.

Following the completion of a timed ride the GSR would stop recording automatically at which time the Garmin head unit was stopped. Data was saved from all the equipment until it could be accessed for analysis at a later point on the Apple Mac laptop. Certainly riding around the city with a multitude of sensors was a novel experience for myself. However, it was the wearing of a GoPro camera on my head that received most comment from other people I met on the street. As Brown, Dilley, and Marshal (2008) discuss, in relation to their study with head mounted cameras and cyclists, “despite never having worn one before, some found it easier than others to incorporate into their social worlds” (p. 5). Wearing the camera, especially in the beginning of each recorded 'ride' made me feel as if I was receiving some odd looks, yet when up and riding a consideration of the camera was often lost. I did receive several comments about the camera, but most were positive and many knowledgeable as my data collection surrounded a recent special report on the cameras that had been made by the *60 Minutes* program that was shown on the national ABC television network. The comfort people had with seeing a man cycling with a camera attached to his helmet underpinned “the need to consider the ways the visualities of headcam are, or indeed are not, embedded in particular culture” (Brown, Dilley and Marshall, 2008, p. 5), and that an embodied practice that may have seemed unusual to most was

now more commonplace following this broadcast, and the comments reflected this increased knowledge about the device.

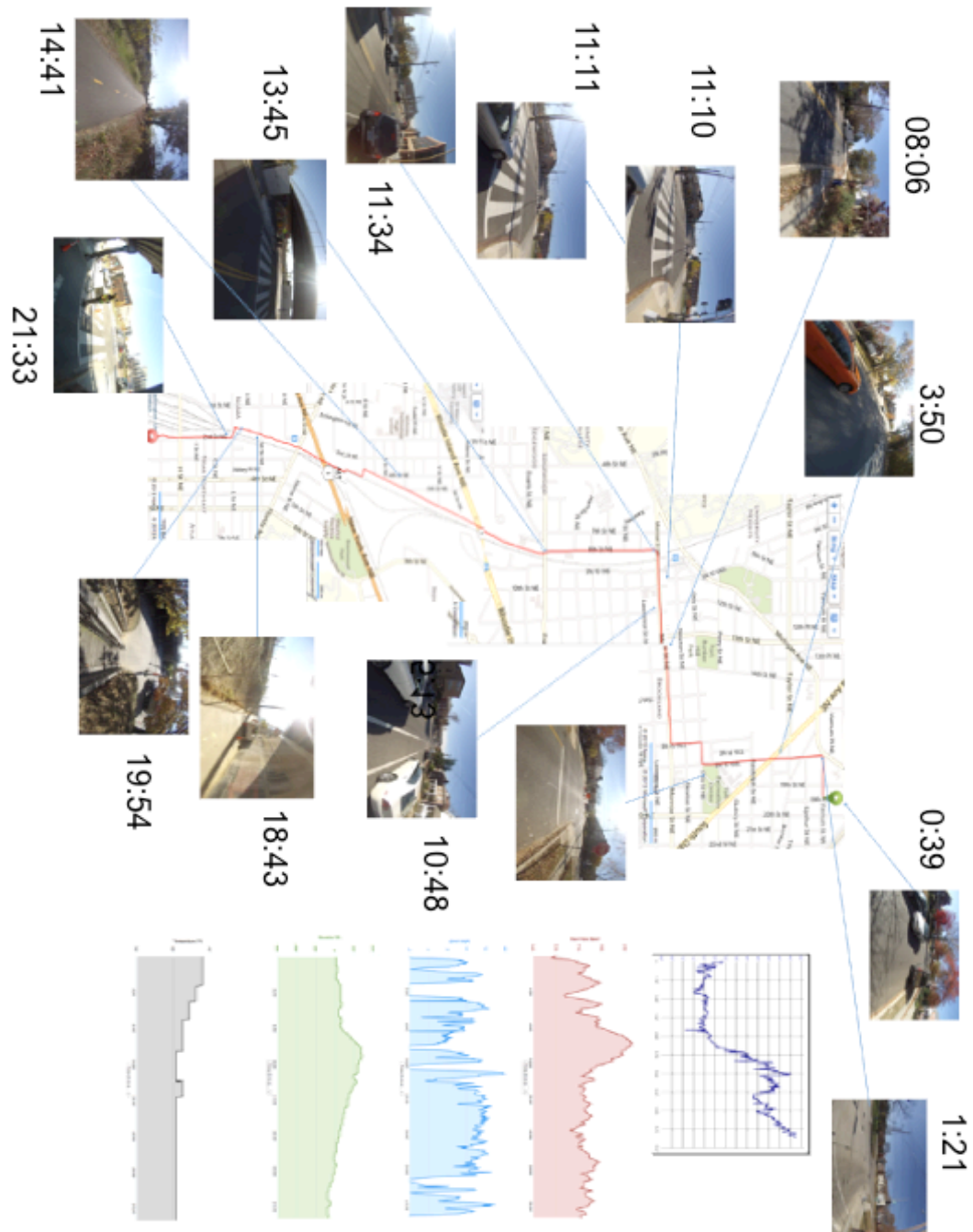
Data analysis

For each ride I have compiled the data into one document so that it can be seen in conjunction. Each sheet includes a GPS mapping of the route that was ridden, Heart rate data over time, GSR data over time, and select images of the ride chosen to highlight particular elements of the ride. Each image was selected through the repeated re-watching and re-listening of the recordings, in combination with the very real memories of actually completing the ride myself. In addition I have provided narratives that integrate the field notes, and analyses drawn from the recordings of each ride. The narratives aim to be emotive and descriptive in nature, whilst blending in some of the live-recorded field notes. Each story told attempts to further inform the reader of the experience, and the environment within which it took place. Also the writing is explicitly emotive, trying to reflect the sensual dimension to the riding experience, as well as my emotive responses as I engaged with the affective resonances of each moment. Indeed for other scholars seeking to explore the affective resonances of physical activity, the capturing of emotive responses through interviewing and field notes has been the extent of their research (Jones, 2012; Roy, 2013). Thus it is important to include these emotive narratives as the basis upon which to add the more experimental inclusion of data surrounding sensorial responses. It is both an attempt to gain data on how affective intensities are felt, but also how “they are expressed emotionally” (Roy, 2013, p. 2)

The presentation of these data is limited by the space in which I am constrained to the written dissertation format. I have attempted to include as many representations of the different forms of data as is possible, yet this presentation format must be recognized as another level of mediation, distance, and disconnection from the sensorial experience of riding a bicycle in the city. None the less, each ride data as presented does allow me to speak to some of the expected and unexpected experiences of riding the city, my emotional responses, and whether these are reflected in the bio-marker data collected. Beyond the ontological un-sureness of the ability of biomarkers to represent affect, the heart rate data and GSR data collected has some technical elements that reduce their accuracy. Both pieces of equipment used are relatively accurate instruments for what they collect, but the data they both collect are influenced by a range of variables that cannot possibly be accounted for in the uncontrolled environment of the city. GSR data is a recording of skin conductance, and although this is relative to 'arousal' from stimulus, sweat levels that are caused by more chronic environmental conditions, such as temperature and humidity, also will impact it. Although these are important aspects to the affective dimensions to the city, they may reduce the ability of the instruments to detect acute responses. Additionally heart rate data, other than being relative to 'stress' or 'excitement' is also influenced by aerobic and anaerobic work. These two factors have been taken into consideration in the data collection. Firstly I have accounted for this by including other data that helps inform the heart rate and GSR data. Particularly I have included speed, elevation, and temperature data for each ride. Secondly these imprecise dimensions to the data collection have stopped any definitive claims about

the affective, beyond the philosophical limits, but this is not the focus of the study. It is also a tradeoff to collecting data in the field, a tradeoff that is welcome to be able to speak to the experience of the city.

Ride Test One



(Figure 11. Ride one route, video capture images, GSR data, Heart rate data, speed, elevation, and temperature)

Ride Narrative:

To get to the start point for the ride I had already ridden in from my house in the Maryland suburbs to the north of the city. It was a brisk day, but was clear and sunny with the temperatures slowly rising. The ride into the city was mostly along a bike path that runs through green fields along the Anacostia River. The path empties out into a neighborhood in the northeast quadrant of the city. A mostly African American and lower SES community, the route I took takes roads through project housing, pass a couple of small parks, and through a row of shops which includes a couple of fast food restaurants and a Baptist church. Once I had got further into the neighborhood, and to a quiet area I stopped to attach all of my recording equipment. This was a slow process that took several attempts. This was the first time I had attached everything at once. As I stood on the side of the road and struggled with all my electrical wires several cars passed by slowly. The postman stopped and watched me as he sort through his letters for the street. The temperature continued to rise, I started to get itchy as I realized my body temperature rising. I opened my jacket, but drops of sweat had already formed on my face and several dripped on to my GPS unit. Cars passed me, but they were slow, the roads were almost empty at midday on a weekday in a residential area. Finally once I had attached everything I prepared to head out into the city center. I was apprehensive that everything was working properly. It had taken months and weeks to get to this point, so all the data collected would be important. My heart rate had sunk as I had been standing still for a while now. I embarked on a route I had been on previously, with residential streets being mostly what I would be entering for the first part of my journey.

As I exited the residential neighborhood I was in I crossed my first busy street. Luckily the street I was on intersected with a traffic light, at least I wouldn't have to try and join or cross fast moving traffic. A cab pulled up behind me at the lights. I started to get a little worried as cab drivers often don't give you a lot of room as they pass. They spend so much time driving in the city they think they have knowledge of their cars dimensions, so they 'shoot a lot of gaps'. I was nervous to get away from the lights quickly, especially as I was going up a hill. With no bike lane on this road I knew he would try and get around me quickly, so he wouldn't get held up behind me. The quicker I can get going the less chance there is of him passing me quickly when I still have less momentum and am less stable. As predicted when the light turned green I moved slowly up the hill and he sped past me close. My heart pumped hard as I tensed when he passed and my muscles worked hard to get started on the hill.

The road wound down the other side of the hill and through some more residential streets. Road works blocked my usual route through, but a quick detour took me around the block and back to the road I was planning on taking. Despite the earlier 'buzzing' from the taxi there hadn't been anything that was frightening, maddening, or exciting to the ride. It had just been a pleasant roll through the residential side of the district. As I rounded the roadblock however I joined a main road that would lead back up and over another hill, through a small shopping area and on to another bike path. This road was a long drag up the hill on a busy road. I looked both ways and entered the road, apprehensive of the physical exertion that would be needed to get up the hill quickly and be moving at a closer speed to the traffic around

me. Without any bike lane I feel safest when I am moving at a similar speed to the cars. The speed allows me to move in and out of traffic easier and in many ways slows down the decision making process. Certainly bumps in the road have to be navigated with split second decisions, but moving between lanes and maneuvering around parked cars can be done with less split second choices. Luckily when on the road I had unknowingly played the lights at the bottom of the hill right and there was no cars around me on the road. I looked behind me, with a feeling of relief and pushed on. My heart rate went up and up as I climbed. But luckily traffic did not reach me until I got to the top of the hill. Feeling like I had dodged a potentially threatening situation I rolled to the top of the hill taking in my breath. However, just as I approached the apex of the hill a van backed out of a driveway. His bright white lights caught my eye as I approached. Luckily my slow approach to the top of the hill allowed me to stop quickly, with little fear of locking up my wheels. He carried on unaware of my presence, and once out I passed him to head down the other side of the hill.

Rolling with increasing speed I passed by a row of shops on the right side of the street. The lights were green as I sped through the intersections. I relaxed my lungs as I gained back my composure after the hard pushed hill climb just completed. Yet as my lungs relaxed my grip tightened with the speed. Cars similarly increased their speed as we descended. A bridge lay at the bottom of the hill, and I was quickly into a bike lane as the road opened slightly. Suddenly a car decided to pull over in the bike lane, with hazards on I quickly took a look over my shoulder without thinking. My hands tightened, my breath shortened. Scared by the lack of time to consider what

was around me I pushed out into traffic. A car swept past me within two feet. I passed the parked car and pulled back into the bike lane. Still gripping hard to the handlebars I thought through what just happened. I considered my actions, what I could have done differently, and what could have gone wrong. I contemplate the event, but then push forward as a line of traffic stacked up in front of me, and I needed to negotiate a left turn through the cars.

Usually a difficult this is a left turn through 40 mph traffic, however the cars slowed into a long stationary line. Road works held everyone up ahead, and the previously smooth tarmac turned to stripped concrete. Where the road's top layer had been lifted machines had left a grooved surface that rattled everything on my bike. Yet a situation that would normally invoke additional concern and apprehension was diminished by the immobility it had forced upon the cars around me. I slowed as I crossed patches of loose dirt and rocks strewn across the corrugated surface, but with the now still obstacles ahead I weaved through the cars and took my left into a quiet road. At the end of the road I joined once again a bike path. The path was a multi use path similar to earlier in the day, but this time it did not follow the quiet green spaces of the Anacostia, but instead wound through the urban cityscape of DC's more industrial inner east side tracing the major northerly train line into the city.

Relaxed once again from the fear of mixing it up with cars, I relaxed my grip on the handlebars and for the first time since I left the streets of northeast DC I visually took in the sights around me. A heavy metallic smell hung in the air as I passed huge piles of dirt and metal shavings. The crackle and spark of welding torches rippled past my ears in the near distance, but I could relax. I dodged under

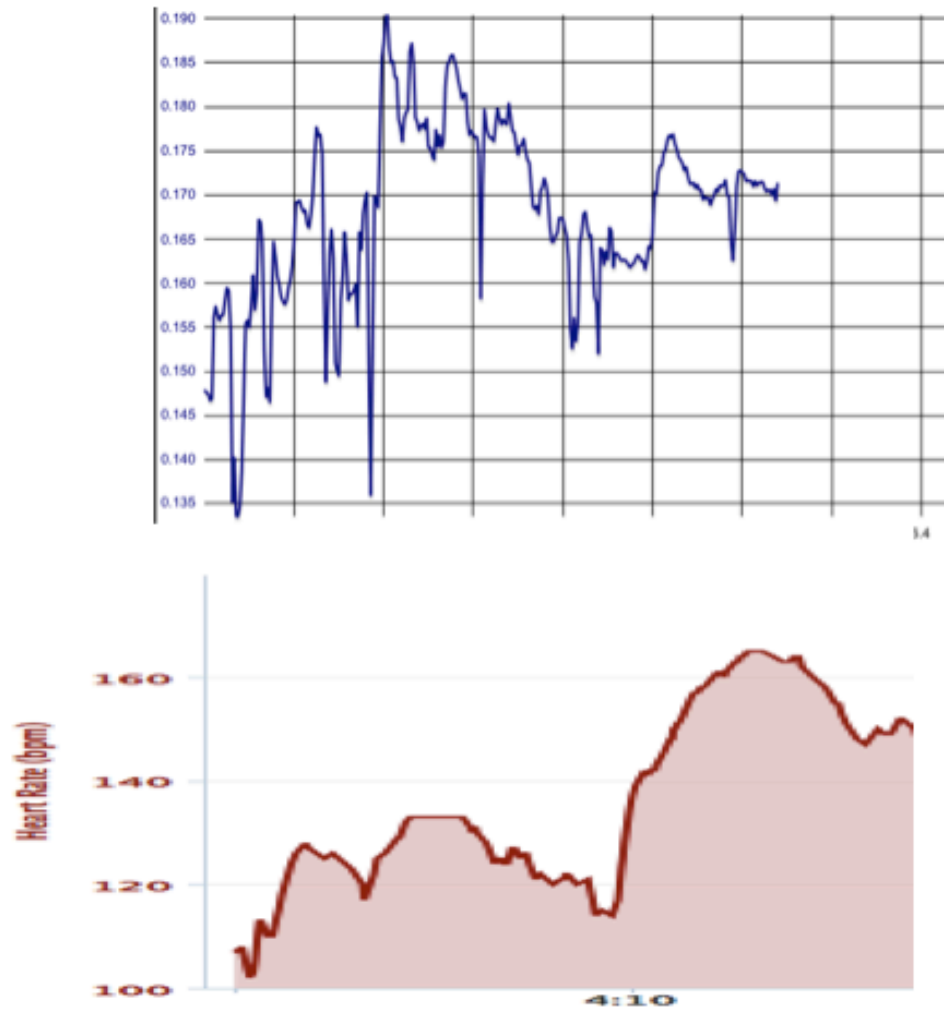
cherry pickers, relatively as the workmen looked on seemingly unconcerned by my presence. Few people cluttered the path and the sun shone on bright in my eyes, the industrial smells and sounds of the industrial spaces next to the train line penetrated my senses, but my detachment from the dangers of the streetscape allowed me a chance to respond to their presence.

Ride test two



(Figure 12. Ride two route, video capture images, GSR data, Heart rate data, speed, elevation, and temperature)

Due to the limited GSR data I have provided a zoomed in image of the time it did record for.



(Figure 13. Zoom in of ride two GSR data and Heart rate data over the same time period)

Ride narrative:

Starting back near my old neighborhood the surroundings were familiar, whilst also taxing every sense. The neighborhood centers on a large shopping center. Sirens wailed, children cried, people had loud phone conversations. This time it took me much less time to organize my equipment, however as I donned my mass of electronics the busier space led to more long stares. I prepared to enter to busy traffic on 14th street and a police officer on his beat was questioning two young men as I pushed off, his radio buzzed with the calls of the crime around DC. As the lights changed I rolled into the bike path that runs along this busy thorough fair, and immediately had to work my way around a bus half in his stop.

As I worked my way up fourteenth I felt energized with this being the first ride of the day. My separated space gave me time to take in the surroundings. People carrying shopping bags, the smell of a food truck's lunchtime curry offerings wafted across my path, and music poured out from the corner stall where several men sold an assortment of goods. As I brought my attention back to the road an odd sight challenged me to refocus on my presence in the road. A man dressed in black came bounding toward me, fully dressed in exercise clothes he was using the path as a running route and forced me out into the traffic. With a quick look over my shoulder, a tightening of my grip, and a heavy turn of the pedals I rolled into the main lane. Luckily cars rolled through at a similar speed and I was able to smoothly enter the flow. Passing the runner I moved back into the bike lane to be met by another cyclist coming the wrong direction down the bike path towards me. He cut across my path and rolled into a side street. I immediately was caught off guard, anger started to

creep as he violated the rules of the road, but my many transgressions of the road proliferated in my memory and I let it go.

Shortly following this the bike lane disappeared, but traffic thinned as we moved into more residential areas. I took advantage of just making it through a red light and swooped left into a side street cutting across to 16th street heading down to connect with Columbia road and the bike path that runs along it. This path later drops you into the quiet 18th street running through the Adams Morgan neighborhood. I jumped a curb, and cut around a long line of traffic that was merging with Columbia. My excitement rose as I whipped past standing traffic, maneuvering through crossing pedestrians and into the bike lane. The traffic backed up along almost the whole street as heavy goods trucks created a bottleneck just before the turn on to 18th. I pedaled on excited as I quickly passed by car after car in my bike lane space, left empty of other vehicles.

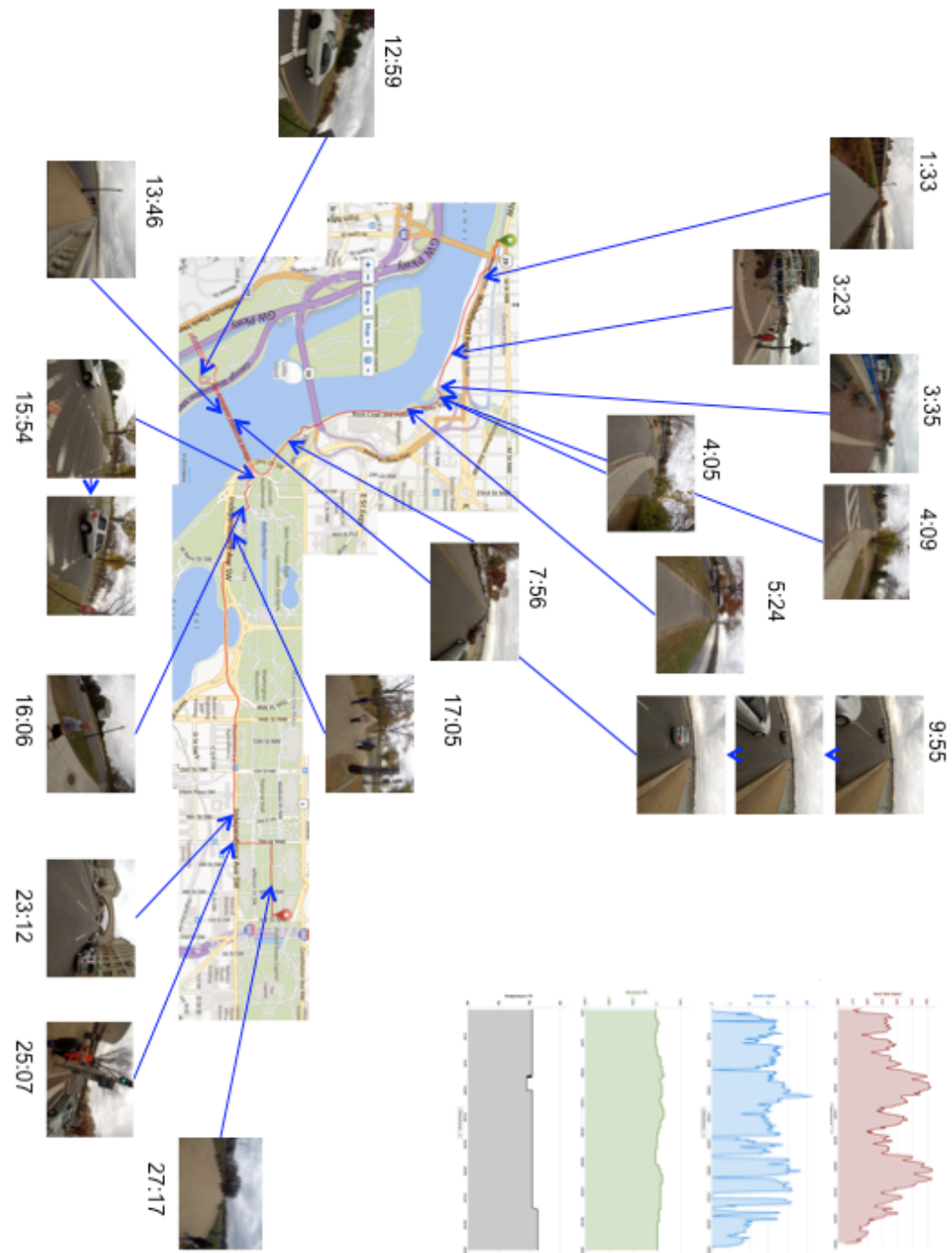
Sudden movement in the corner of my eye... Muscles tighten all over my body... both brakes are fully on. The back wheel locks and I feel my back end slowly shift sideways underneath me... seconds later I realize that if I hold my brakes much longer I will start to go down. Luckily the car has come to a standstill as I slow to a less than walking pace roll. I shout with out thinking 'Hey!! What the fuck was that man...wooo... that got my heart going...'. My right hand comes off my bars and I throw it up with a feeling of exacerbation. This guys 'small' lack of concentration could have meant serious injury. I'm angry, feeling vulnerable, and my heart pumps hard. There was no sound, no smells, and the visuals feel like I'm looking back at a set of Polaroid's. The memory somehow seems instantly distant, but the reviewing it

in my head days latter makes my legs tense beneath me. In retrospect I just get more upset and angry about the lack of consideration from the driver. Following my shouting and outrage the man shook his head, implying my responsibility for the incident... we were in obvious disagreement about who was at fault. After he passed into the side street I pedal hard in my anger and shock, cutting through the cars in my annoyance by the damage possible to me, by what seems to be such a small mistake in a car...

Cutting down through the city I take Florida avenue, a designated bicycle route on google maps, but no bike specific markings or infrastructure are evident. Ultimately this leads me to M street, a large cross town road, devoid of bike paths, but with four lanes its gives me plenty of space in amongst the cars. The road runs across a bridge and into Georgetown. The neighborhood is a major shopping street in the district, pedestrians line the sidewalks even during midweek. With dense residential streets to either side, with one-way routes making the space difficult to navigate. The now three, and then two lanes that run the length of Georgetown are heavy with slow moving cars. This is my playground. Ducking and weaving through the slow moving cars I jump from lane to lane, spotting potential roadblocks early and moving around them smoothly. The closest to feeling I have to what I think it feels like to be a messenger riding the wave of stop slights down 5th avenue in Manhattan. I feel excited, my body flows with the bike and I feel like none of my decisions can go wrong as I chose to shoot the closing gaps between bumpers. But my excitement is short lived. This certainly isn't a Manhattan avenue, and M street is over quickly. I turn off down a side street and on to a dirt path that runs between the canal

and the Potomac. The stillness of the waters echo's the rapid change of pace I have made. From the bustle of the street to the calm of this separated path. My grip loosens, and my attention diminishes. Once again the sounds and the smells of the surrounding environment flood back to me. Where on the road these elements jumped out only through their necessity for navigating the dangers at hand, on this quiet dirt path my senses become bombarded as my scope widens. With the vivid green of the trees, the low rumble of overhead planes in the background, and the chirp of local birds in the fore, my mind wanders...

Ride test three



(Figure 14. Ride three route, video capture images, GSR data, Heart rate data, speed, elevation, and temperature)

Ride narrative:

Setting out from Georgetown, I followed the river towards the middle of town. The route along the river emptied out on to a quiet road and then turned back close to the river as it ran along through a path over looking the river and Roslyn in the background. After a tranquil ride through an almost empty park the path runs past some fancy looking hotels and restaurants with their own boat docking area. The path became unclear as it wound through chairs, tables, fencing and bollards in this area. With a little more foot traffic I had to pay an increased amount of attention, but with little serious danger and low speeds I continued to feel calm. I took in the continued river views with the grand buildings of DC in the distance. The Watergate complex sits next to the imposing white box that is the Kennedy center. My path curved towards these large structures and eventually would lead me to right in front of both. Leaving the hotel and retail area, the path crossed between being roadside pavement, on road markings, and then back to separate multi-use path. Crossing dirt sections, I found a way through and around the road 'furniture' and back to the path. Engaging sensorially, utilizing proprioceptive, optical, and sonic reactions I navigated joggers and large flocks of pigeons taking flight around me as I rode.

Coming to the end of the path I was spilled back on to a road, this time with no bike specific markings or infrastructure. The road I entered was an exit ramp from a multi-lane highway where cars were traveling around 50-60mph. As the rumble of the cars drifted to me on the path I knew it was time to increase my concentration,

narrow my sensory focus back on to what was at hand. I increased my speed to match the cars coming of the highway as best I could, picked a gap and entered the road. I dragged up hill towards a roundabout. Several joggers came towards me in the road, forcing me into the traffic. I swung my head around, tried to give myself presence in the main lane early and pushed hard on the pedals. As I approached the roundabout the Lincoln Memorial stood large and grand to the other side of the multi-lane rotary. I saw the heavy traffic and thought it best to take the first exist rather than attempt to cross multiple lanes. My hands gripped the bars hard. No hiding it, at this point I was very scared. The cars were moving quickly, filling almost all the lanes, and I had little idea of where I was.

As I took the first exit I was on a bridge heading over to Virginia. I had come this way once before, but had taken the walking path that ran adjacent to the road. That previous time I thought how lucky I was not to be in the road. The bridge stretched across six lanes, had a poorly maintained surface, and connected with a highway out of the city so few cars were paying attention to the 30mph speed limit. With high curbs I had no way of quickly exiting the street so was forced to push on. The first few cars that passed, did so by either changing lanes or half shifting into an outside lane. I pushed on, trying to avoid potholes and storm grates, a puncture here would be a nightmare. My heart rate shot up to a high point for the ride, registering over 162bpm despite the flat terrain and average speed for the ride. I gripped hard again on the bars, with serious fear for my safety rising to the background of every minute decision I was making.

I felt it coming a split second before I saw it. Maybe a collection of sound, pressure change, smell, plus some other sensual response. I couldn't definitely say, nor parse out each element, but a split second before he passed and into my vision I could 'feel' the BMW roaring past me within inches. Certainly feeling closer than the reality, I swerved towards the curb and hit a pothole. I wanted to scream at the driver, but nothing really came to my mind. Instead I let out an unprepared and angry/scared grunt. He sped off in front of me. I regained my balance, and after looking behind me I centered myself further into the lane, realizing shortly after that I would need to cross several lanes. Luckily I spotted a gap in traffic and rolled through to the outside lane and into another roundabout. I took the second exit and rolled into the relative calm and quiet of the Arlington cemetery, taking a moment to regain my composure, letting my heart rate fall and contemplating how close I had just come to being hit...

Heading back over the bridge I took the pedestrian path, too scared to get back on to the road that crossed the bridge. Still dodging obstacles on my way back I was happy that they were slow moving pedestrians, not roaring hunks of metal and plastic. Following the bridge I rode mostly paths, crossing mud and main roads, with one more big push of speed to roll down a large arterial road back into the city. Once in the center of town I turned on to the national mall and slowed. On the loose gravel I slowly meandered through groups of tourists. Emotionally, mentally and physically exhausted after my encounter I slowly made my way towards the Capitol building, and a much-needed break.

Ride test four



(Figure 15. Ride four route, video capture images, GSR data, Heart rate data, speed, elevation, and temperature)

Ride narrative:

After my brief break on a bench in broad view of the capitol I re-mounted my bike and headed out towards the south east of the district. This was an area that was new to me, especially for riding. I set off tired and with a little apprehension in the back of my mind. After a quick detour through some office buildings just south of the Mall I headed up a long and dragging hill to the south of the Capitol building. The multi-lane road was quiet, and except for dodging some eager cabs, picking up and dropping off white men in overcoats at grand white buildings, there was little threatening about the road. There was no bike markings or infrastructure, but the relative calm of the road allowed me to relax. The hill was certainly a challenge physically, and the sweat again started to build inside my helmet, dripping salty liquid into my eyes and distracting my vision.

At the top of the hill I turned into a main road heading south east, the traffic continued to be little and slow. The multiple lanes gave me some space, especially as I navigated increasing amounts of parked cars and blindly opened doors. About a mile down the road I took a turn due south, and joined a quiet residential road with a bike path. The road offered double comfort, a quiet and slow trafficked neighborhood, with my own road space.

I gently rolled through this neighborhood towards the DC city government buildings and baseball stadium to the south. With the dangers dropping away I was once again able to open up my attention, taking in sights, sounds, and smells well beyond the narrowed streetscape to which I had previously been tied. Following

undulating terrain back away from the river I headed north, but as I continued along quiet streets with well marked bike paths I was able to relax and enjoy the ride.

As I came to the end of the day I was exhausted from completing ride two, three, and four in one day. Emotionally, mentally and physically the 15 miles covered was a challenge. As I looked back on my time riding in the city it was indeed a challenge even as an experienced rider, and certainly I realized there was very little of each ride I would be happy taking less experience riders on.

Discussion

The collection of all the forms of data I sought to gather together was a challenging task, both in preparation and execution. This challenge was accentuated by my initial lack of knowledge of the technologies and science behind what I was attempting to record. Additionally there was a particular challenge in trying to gather all of this information simultaneously during a mobile act, outside of any controlled setting. It was necessary to attempt to gain “an understanding of the less representational– those fleeting, ephemeral and often embodied and sensory aspects of movement” as it “could lead to better policy making and planning because we have a better understanding of phenomena” (Spinney, 2011, p. 162). However, I very much experienced difficulty in collecting this data as “their transient nature does not readily lend itself to apprehension through quantitative or verbal accounts”. This is reflected in the lack of GSR data in the study. I managed to collect some data reliably, but through technical issues that are still unresolved, most of the data was not recorded or gave readings that demonstrated a disconnect in the system. As such I have primarily

drawn my analyses from other sources of data. I have utilized emotive field notes and video to be able to comment on the affective experiences of cycling, even if this another level removed from “the realm of the habitual and unconscious” in which our ability to be affected non-representationally resides (Spinney, 2011, p. 162). This means that I have been able to add to the study of affect with this particular combination of methods, but with limited GSR data I am resigned to greater focus on emotion as it “represents a sort of personal and discursive “making sense” of feeling”, rather than engaging fully with sense data as a direct reading of responses to affective resonances (Roy, 2013, p. 2). The consequence of this limited data collection is that general themes or comments about the relation between affect and the materializations of policy, as well as the social landscape are difficult to draw out. I have pulled on specific instances to contribute to this discussion, but it has highlighted that further refinement of the methods and more data collection needs to take place.

Each of the rides proposed a varied set of spaces and interactions, covering both streets designed for the inclusion of cyclists and others that paid them little attention. Despite this mix of settings, each ride had many moments of emotional intensity. A relatively untamed engagement with the sounds, smells, sights, and felt materiality of the city was experienced in every ride. Whether intense or not the affective resonance of every moment was sensual and embodied, forcing me to act without the clear and linear process of thought. What became evident quickly from reviewing the material was that clearly “iterations of local, regional, and national policy making... invariably had quotidian, human, and emotional costs and

consequences, for better or worse” (Horton and Kraftl, 2009, p. 2985). In Particular the design of streets, or the connection with off street spaces that provided a distance from the car traffic and influenced the affective resonances that the rider has to engage with. Each degree of separation from busy street traffic seemed to lessen the affective intensity. This was not just through bike lanes, but also separated paths, residential street planning, and unexpected interruptions to traffic flow such as road works. Yet what was also evident was that this distance could not eliminate affectively intense experiences. Three moments in particular stand out in the video and field note recordings that were particularly intense and resulted in large emotive responses. Two of these three occasions were in protected spaces, demonstrating that the uneven provision of cycling infrastructure around the city played just one part in the affective/emotional terrain of Washington DC. Specifically designed cycle infrastructure was not the only factor in the affective intensity of a ride. The ever changing factors in any situation change those moments of relationality out of which affect is born. Thus particular street design and momentary changes to the streets from road works or parking restraints have effects on how I experienced my riding. However, the ability of these infrastructures to dictate affect was lacking. Cities may design spaces to encourage particular responsible patterns of behavior as they appeal us cognitively and affectively. They may also orient these around appealing to the perceived felt and thought desires of a creative class. Yet their ability to enact this is limited. Indeed the most successful spaces at creating positive emotive responses, and my new found desire to return to them are those by the river, an environment influenced more heavily by the environment then by man made design or the

presence of other people.

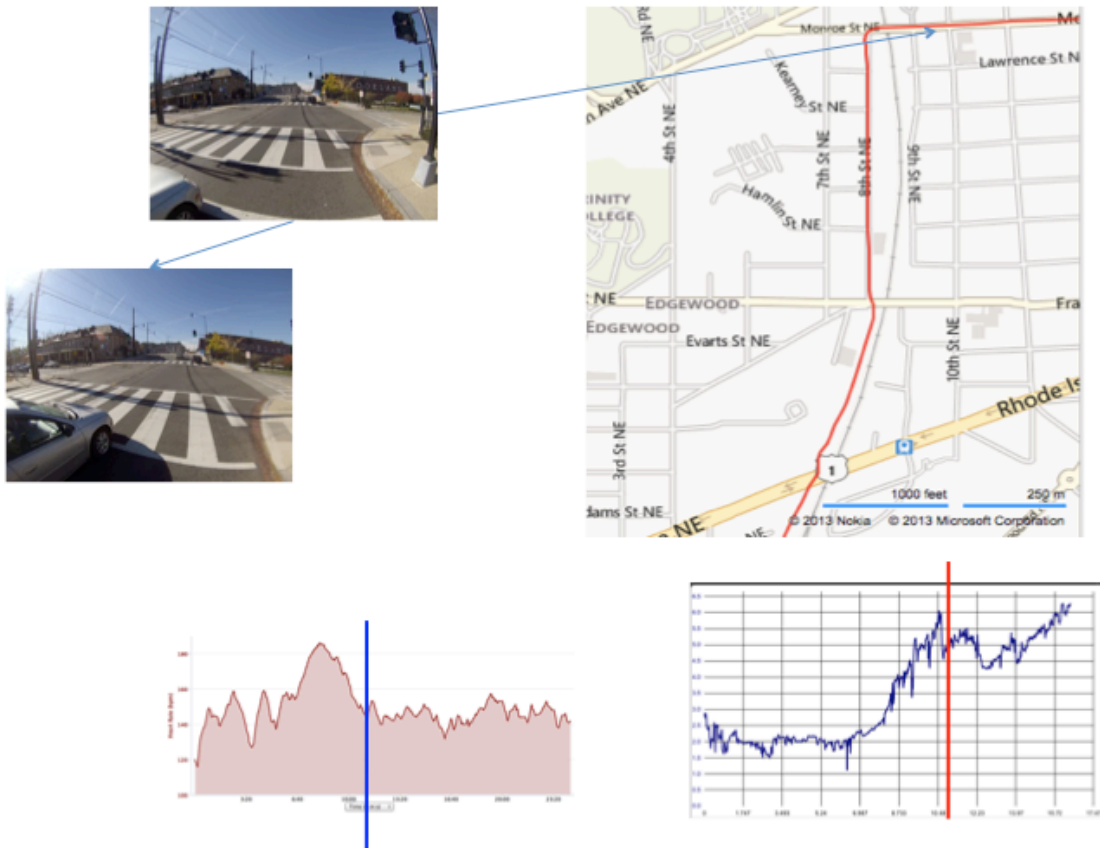
Whilst riding in quieter spaces, distanced from road traffic, the altered affective intensity of a situation seemed to evoke less intense emotive responses. However, that is not to say that in these moments I was not as sensually engaged, or that these moments lacked affect. Rather these moments evoked different emotive responses, and allowed me to cognitively interpret more elements of my surroundings. During near miss incidents with cars, or whilst weaving through heavy traffic I was more focused on fewer elements of my surrounding associations. As van Duppen and Spierings (2013) discuss “When cycling, the interactive relationship between body and environment can be quite intense. This is especially the case when high speed is involved... making space seem more ‘fluid’, requiring quicker responses to changing circumstances” (p. 235). As such when riding through traffic I was listening to the sounds of car engines to judge their pace of acceleration, and giving primacy to my sight as I watched gaps between cars open or close. In contrast whilst on the bike path that runs adjacent to the Potomac at the end of ride two I can recall the smells of the river and the river bank vegetation, I could listen to the wildlife around the path as well as the river running, whilst also taking in the broader sights of my surroundings from the immediate details of my close surroundings, but also the distant architecture of multi story buildings. Thus I had to pay attention to that root that was running the width of the path in front of me, but I could also take in the greenery on the rivers edge, and the looming glass fronted buildings of Roslyn, VA across the river. What I am suggesting then is that during moments when certain sensual stimuli come to the forefront, my ability to respond cognitively or

emotionally to all the actors affecting me, the affective resonances of a particular moment is diminished. This is not to say that they ceased to affect me, however my cognitive process narrowed that which was modulated. Jones (2012) suggests that “Affect provides a means of theorising the intertwining of body and world as a set of intensities, both positive and negative, with different individuals having more or less capacity to manage the physical/emotional challenges they pose” (p. 645). Whilst I agree with the wider commentary on the importance of affect as a concept, it is the second half of the quote that is key here. Whilst I believe the affective resonance of any situation is relational, and therefore not wholly controllable by my actions, my ability to engage with the affective resonance of a situation, and assign emotive and cognitive dimensions to it is intimately tied into our previous experiences, cultural knowledge, particular physicality and physical abilities. For instance whilst I weave through road traffic my ability to engage with my surroundings is going to be narrowed compared to someone that has been a bike messenger for thirty years. The affective resonances of this experience may be similar for both of us. The same cars may be moving at similar speeds around us, but someone else’s physicality, physical abilities, and knowledges may allow greater attention to a wider set of elements that make up the immediate setting. As “Affect Studies captures the situational nature of affect in conceptualizing affects, as emerging at the moment when bodies meet” (Seyfert, 2012, p. 28-29), affect as a concept is broader and further detached from the center of the subject. Yet what was clear through this study was that the emotive reaction to this relational impact upon us is not static. As much as our presence within the assemblage of things from which affect is generated is variable, our modulation of

these moments widens and narrows due to a multitude of factors, those various element in the assemblage that we are brought together with, and the knowledges, histories and physicality we bring with us. The assemblage is variable, so as this changes so does the ways in which we are affected, but also our abilities to modulate our sensual engagements with this assemblage is constantly in flux.

The biometric data that was recorded seems to correspond to general trends in the affective intensities of the riding experience, but it seems that heart rate and GSR is not always acutely representative of the emotive engagement that was recorded in these settings through field notes and video recording. This is not to say that there is no connection between our sensual reactions measure through biomarkers, and our representational emotive states. However, it must be stated that my data did not confirm this connection. This is probably due to a need to further refine the methods, and gather more data, as well as potentially a more complicated or varying pathway between how we feel affective intensities and how we emotively modulate them than was expected. Hook (2009) did discuss the development of “building a system named Affective Health that provides real-time feedback on mobile phones” which had “sensors [that would] pick up on movement, pulse and skin conductivity” (p. 3590), unfortunately this system did not seem easily accessed, and was still under development with a large Swedish technology group. In addition the information output system they were designing seemed more directed to instant feedback for lay users, rather than providing GSR numbers over time. Luckily Neulog did manufacture a portable GSR sensor that was easily commercially available, and provided more technical data recording. Despite the ease of access to the equipment,

it did lack some accuracy as the WiFi connection to a phone for data recording was un-reliable leading to a loss of data. Despite these technical issues that can be addressed in future projects, there needs to be some consideration of what the data is representing when taken out into the streets. Where GSR data represents skin conductivity this is impacted by multiple factors. Dickson and McGinnies (1966) suggest “It seems clear that GSR is evoked by, among other things, stimuli judged to have affective significance” (p. 584). However, affective response is one element that impacts GSR readings. Skin tension and sweat will change GSR readings, but so will humidity, temperature, precipitation, and wind are going to change the electrical resistance of our skin. Now this does mean that GSR data is reflective of an even wider set of actants present in each assemblage, but the ability to single out effects and measure them acutely is diminished. To demonstrate the disconnect between what was observed through video recording, emotive field notes, and GSR data Ride one provided the most successful recording of GSR data and therefore offered a full range of information. I have drawn out one particular moment from this ride that was of particular note in my emotive field notes, and stood out in the video recording. A car passed me extremely close as I was forced out into the road by a car parked in the bike lane:



(Figure 16. Video screen shots, Heart rate data, GPS data, and GSR data for one high emotional intensity experience in Washington DC's northeast)

As can be seen my heart rate rose after the incident, although this spike in heart rate was small compared to the level reached during the previous hill climb. The GSR data saw a general upwards trend but the event represented a lull in the data before this upwards shift in the numbers. In this instance the video combined with GPS data and field notes provided information that allowed me to speak to the specific acute instance at hand to a greater extent.

I have drawn out one further incident that should highlight an affective moment that had more intense emotive response, and the related data collection from that moment. The incident took place 8:17-8:26 minutes into the ride at the

intersection of Columbia Road NW and Ontario Road NW. During the incident a car turn into my path as I was quickly traveling down a bike lane. In the video you can see that I am forced to come to a sudden stop and quickly gesture at the driver. The field notes record my surprise and angry reaction to the maneuver. During the incident my speed dropped dramatically as my heart rate spiked heavily. The road did not pose any other physical challenges (i.e. a hard incline, or the need to accelerate around traffic) so the heart rate spike could be said to more likely be reactive to the incident. However, as similar spikes in my heart rate were seen at other points due to other factors this recorded bio marker cannot be said to be wholly attributable to the near crash incident that was recorded. The information certainly seems to corroborate the field notes and film data, yet this information should not be understood to definitively mark an affectively resonant moment.



(Figure 17. GPS data, Video screen shots, Heart rate data, field notes, and Speed data for one high emotional intensity event in Washington DC's Northwest)

These data continue to be useful in locating these affective resonances as I geographically place these relational events through mapping my emotive responses. As Larsen (2013) states "Commuting by bike requires that people (learn to) cope with the affective intensities of 'bad' weather, fears of cycling, and the physical labour involved" (p. 5). The information demonstrates my ride engaging with each of these and more. Certainly DC provided spaces of relative calmness, yet continually my senses were being engaged by an assembled set of human and non-human actors, if not always so intensely. However, what was also clear was that the bike specific infrastructure of DC did not alone dictate the affective terrain of the city.

Conclusion

The research that underpins this last chapter was an attempt to generate data to discuss the affective dimension of riding a bicycle in the city. It was work built on the premise “that bodily experiences are integral to how we come to interpret and thus make sense of the world” (Hook, 2009, p. 3585). This work theoretically drew on work that extends from Spinoza through Giles Deleuze particularly, but also some work based on the scholarship of Gilbert Simondon. As such I was attempting to engage with affect as an extra cognitive and relational resonance that impacted upon our emotional and cognitive processes, locating this in the spaces of the city to map connections with the materialization of an uneven but relatively prolific cycling infrastructure in the city. Within cycling scholarship several authors had attempted to address ideas of affect, emotion, and the sensual experience of riding in urban spaces. Thus I looked to extend and build on the writing of Jones (2012), Larsen (2013), Kidder (2009), and Jungnickel and Aldred, (2013) in particular. Each of these studies had looked at ideas of emotion, sense, and affect primarily using autobiographical data from the researcher, or utilizing research participants. As discussed previously I was looking to extend this to start to utilize autobiographical emotive and descriptive field notes, alongside head mounted video recordings, GPS, GSR and Heart Rate data. By adding the bio-markers in particular I was not seeking to definitely pin-point what is affect, but through adding more data I sought to add perspectives on the affective experiences of cycling in the city from different levels of analysis, and

locate these responses in space. The collection of this data was challenging, especially in developing the technology for use in the streets whilst riding a bike. As such further research is necessary to refine the protocol and generate more reliable information. This research highlighted just how complicated affect as a concept is, demanding further study. Once through the difficulty of generating a coherent definition I was still left with something that was in constant flux, made up through the interaction of a complex constellation of actors and environments, and that continually shied away from measurement. Thus this emergent, and constantly shifting nature of affect poses ontological and epistemological challenges to how we can know it. Yet this cannot stop us from attempting, even in crude manners, to start to map our affective experiences as they play such an important part in our lives.

Jensen (2013) suggests that there is:

a growing number of studies point to cities' increasing awareness of the non-discursive – the corporeal and emotional – dimension of urban spatiality and its tremendous significance for urban life (Jensen, 2013, p. 221).

As such, even in its limited form this study contributes to this growing number, providing enough data between GPS, video, and emotive field notes to suggest that whilst cycling infrastructure at some level may seek to translate municipal contouring of the city affectively as well as symbolically, the emergent nature of affect and its modulation as emotion means that it will always overflow these intentions. The creation of affective intensities is a distributed process that is an

outcome of an ever-shifting assemblage “of heterogeneous elements that may be human and non-human, organic and inorganic, technical and natural” (Anderson and McFarlane, 2011, p. 124). Thus for those that are in the city, in its multiplicity it is “complicit in shaping their emotional states” (McGaw and Vance, 2008, p. 68).

In all the cities in this project governmental actions, highlighted in policy documents, observations, and interviews, have contributed political, economic, socio-cultural, symbolic, and physical terrain of the city. These forms of governance have in turn contributed to the affective resonance of the city. However, what became clear in this chapter is that just as in Baltimore, the affective as with the social, is extremely complex. As such whilst the governance of the city contributes to the cycling community in the city and the affective intensities of its spaces, both are outcomes of a wider confluence of actors. The planning of DC's cycling spaces, informed by creative city policies has both intended and unintended affective influences. Yet the data I gather suggests that this planning and governance does not dictate the affective experiences of cycling in the district. It may well play an important and prominent role in any experience of riding in the city, consciously or pre-cognitively, but this is always also in relation with other environmental factors and actors.

In my time riding in DC I had extremely intense affective moments both in and out of cycling specific infrastructure. In addition, despite riding in a city that in specific places has quite an extensive cycling network I was more often than not in streets without a bike only space, which was challenging for me even as an experienced cyclist. As Jensen (2013) suggests “emotions and sensory experience of mobile spaces are targeted and worked upon in urban plans” but that “Significantly,

this shaping is only partly intentional – the experiential dimension, emotional register, and representations of mobility mobilised by particular urban designs and mobility systems have implications for real moving urban people beyond the intended” (p. 222). My research would certainly support this claim. City planners and policy makers have intentions for the affective dimension of urban mobility, yet the impacts these intentions have are always in negotiation with a multitude of other actants and therefore will always have un-expected impacts. In line with Adey (2008):

I am not trying to suggest that we supply architecture [or infrastructure] with the ability to structure, determine and motivate mobilities, emotions and feelings through the manipulation of affect unproblematically [or in totality], rather, that scholars can productively engage with mobility and affect in order to consider how affect and its mobile and emotional effects are engineered, how they are practised through architectural design, and how they are triggered for particular ends (p. 441).

Affect is extremely complex and difficult to capture, but despite the technical difficulties I faced I think the data collected certainly points towards a direction that could help construct more nuanced understandings of affect and urban cycling. Certainly at the foundation “Affect is conceptualised as being fundamentally non-cognitive and impossible to communicate through language” (Jones, 2012, p. 648). In turn Pile (2010) suggests that the study of affect “continually does what it says cannot be done: it cannot help but re-present and represent affect – and in language” and that

this is “straight hypocrisy” (p. 17). As such Jones (2012) and Pile (2010) point to what will always be the difficulty in researching and discussing affect, however this should not be an excuse not to do this work. This project has highlighted some of the philosophical and logistical difficulties at hand, but I think also demonstrates our continued need to research something that clearly plays an important role in our lives, and that different actors attempt to engineer into certain spaces and encounters. The study of affect has many challenges, and is informed by many politics and philosophical frameworks, however “this should not prevent us from thinking more about emotions, feelings and affect – for we’ve much further to go” (Pile, 2010, p. 17). This section of my project is an attempt to take up this challenge to go further, and hopefully inform the important next steps.

Conclusion

This project has developed a multi layered analysis of how cycling is an element in the formation of contemporary U.S. cities, mapping the specific expressions of broad discourses around cycling in the U.S. as discussed in chapter one. Each chapter has built on the last, generating further layers to how cycling impacts the current re-formation of U.S. cities. From the macro political processes of Boston, to the complex social associations through which these policies, programs, and infrastructures are lived, to lastly the affective terrain resultant of this uneven investment in implementing cycling into urban spaces each chapter adds further nuance to how cycling impacts each city. Each city was approached with a different central focus, and therefore utilized varying methods relating to multiple theoretical strands. However, each part of this analysis has been constituent of an integrated interrogation of urban cycling. Fairbanks (2012) states “The interactions between actors and processes operating at diverse spatial scales has been far from clear in empirical terms, creating gaps in our understanding of how formal and informal regulatory mechanisms crystallize into policy regimes and poverty management systems” (p. 550). Thus this project has clarified these relations between public policy at a macro level, all the way down to how this comes to have impacts on the way we experience cities affectively at the most micro level.

The project has extended a focus into the city at various points, whilst maintaining integrated analysis of cycling in relation to urban restructuring. At each level of analysis, and each city I collected data in, I have employed multiple methods and theoretical frameworks. Each facilitated the construction of another layer of

analysis, which in combination forms a critical interrogation of cycling within the contemporary urban setting. From this analysis I have been able to draw some broad conclusions. The first has been that the city is in constant movement. Indeed certain relationships are made to be enduring, but these are never immovable over time, and are rarely exactly the same from one iteration of the city to the next. The city is in a constant process of de- and re- formation, always in a state of becoming. Secondly I believe the city to be complex and emergent. The city is a network of associations, practices, and interactions that are made up by a multitude of actors in any one moment. Each association and its effects upon the greater whole is an impossible task to document. As such it is an emergent entity. The interactions and associations that make up the city are too complex to map, and although their histories will weigh upon their interactions a historically informed analysis cannot offer a complete determination of the outcome of the formation of actor networks. Thirdly this complexity, emergence, and constant becoming will mean that although we often see structures, discourse, relations and meanings endure in similar fashions, there is always an unpredictable and unexpected dimension to the urban. The open potential may not always be realized in a way that causes dramatic change, but it is embedded in every interaction between actants. In combination these three conceptions of the city do not deny intentionality, power, and marginalization, but instead calls for a more modest conception of how these work. In structuring policy, in shaping social interaction, and as being a vehicle for being exposed to affective resonances cycling has played unexpected roles for each of the cities I have studied. The assemblages formed around and through the bicycle have become increasingly large and impactful

on the urban setting in the US, but its continued effects cannot be wholly predicted. I think what can be said is that cycling does impact our cities, shaping them differently as they re-form. I have scratched the surface of that impact with over a year of research, and the information I have collected through various methods does point to some of the particular impacts cycling has had for these cities. As Jensen (2013) suggests “Movement is imbued with meaning and power (Adey, 2010; Cresswell, 2006; Jensen, 2011; Sheller and Urry, 2006), and has gained a vital role for the constitution of particular forms of networked socialities” (p. 220). The city is certainly a complexly assembled network of social actors and cycling has become increasingly central to the formation of the city as such. I have identified broad directions within cycling policy and advocacy towards neoliberal forms of governance, increasing regulation of the practice, and “both totalising and binarising logics” (Cupples and Ridley, 2008, p. 257) that position cycling as a solution to urban issues. Yet within my research, especially following the actors that make up cycling events in Baltimore and exploring the affective dimension to riding a bike in Washington DC, I have also highlighted that these discursive and political overtones are only one part of a complex network that extends around the bicycle. As Cupples and Ridley (2008) suggest “Cycling is a highly embodied activity that can be experienced in many different ways” and that reductive positive rhetoric may simply serve to “obscure the way in which transport options are both classed and gendered”, as well as having a myriad of other effects (p. 258). My project has sought to embrace cycling in both its positive potentials to open the city in new ways, and where cycling functions to exclude and marginalize. I have done so to embrace the intricate position of cycling

within a messy urban context. Thus the work in this project is not definitive as to the impact cycling has had on U.S. urban spaces, but it serves to signpost the sometimes simultaneous contradictions in cycling's impacts on cities, being critical of its negative role, but also holding hope for what cycling can be. In attempting to understand the role of cycling, the cyclist, and their bicycle for the city as a unique setting I have considered that:

In particular, cycling subjects encounter and make sense of the cycle [specific] designs [programs and policies of the urban] via the sense-scapes, the discursive meaning of cycle mobility, and local cycling mobility cultures. Such emotions and sensory experience of mobile spaces are targeted and worked upon in urban plans, through assuming mobile subject's desires and through shaping mobile spaces in the image of these assumptions. Significantly, this shaping is only partly intentional – the experiential dimension, emotional register, and representations of mobility mobilised by particular urban designs and mobility systems have implications for real moving urban people beyond the intended (Jensen, 2013, p. 222).

This project maps the way in which cycling impacts upon the urban from the political, to the social, and down to the sensorial undulations of the city. But it is not an attempt to map this as a coherent, streamlined process, instead being happy with immersing into the messiness of conurbations. It is about understanding the attempts

to enforce governing logics, but also to be attendant to those moments where the impacts of cycling are “beyond the intended” (Jensen, 2013, p. 222).

Cycling as part of the macro political process

Urban Entrepreneurialism

Each city I have studied for this project has utilized dominant neoliberal logics for urban governance that emphasize “the desirability of market oriented approaches to management of public affairs, with an attendant endorsement of privatization, public–private collaboration, efficiency, citizen initiative, and an expanded role for the nonprofit sector” (Howell, 2008, p. 481). It was also clear that in very specific manners cycling has played a role in these modes of urban entrepreneurialism for Boston, Baltimore, and Washington DC. Whilst cycling is seen to be important in addressing social issues such as public health and environmental degradation, an economic imperative was also common across many interviews and policy documents. As MacLeod (2011) states “The past three decades have witnessed far reaching transformations in the economic and social ecology of cities alongside spectacular conversions to their built environments” (p. 2630), and cycling has played an increasingly important part in the programmatic reforms and changes to the spaces of mobility as part of this broader re-formation. MacLeod (2011) goes on to discuss that:

in many instances, such events and projects have been orchestrated by state-led coalitions and special-purpose agencies whose aim is to boost urban

economies amid a quicksilver globalising capitalism and, in older industrial regions, to revive economic fortunes after the breakdown of the Fordist accumulation regime (p. 2630).

Indeed these trends in “macro political-economic restructuring” and a response towards “a burgeoning of urban-poverty survival, management, and governance strategies” (Fairbanks, 2012, p. 546) have been noticeable throughout my research. In Boston despite the increasing codification of cycling policy by governments at all levels, funding opportunities have turned to models that encourage competition for federal and state funds, and the creation of Public Private Partnerships (P3's) has become common place. Within a context of “tinier and less dedicated [federal funding, with states getting broad leeway to transfer half of the funding to other programs” (Higashide, 2012, p. 10) municipalities are increasingly turning to private, volunteer, and informal sectors to provide resources to urban populations. Cycle hire schemes, such as the New Balance Hubway rely heavily on private partners to construct and maintain the system, utilizing title sponsorship and third party operations companies. Similarly cycling was identified to play a key role in the continued redevelopment of Baltimore's downtown areas, of which the recently approved Harbor Point project is a prime example of P3 work.

Despite the prevalent use of cycling by the cities I studied in generating new economic activity and forms of urban regeneration directly through programs like cycle hire schemes, and indirectly as a means through which to attract “a creative class of professionals and revenue-generating tourists” these economic intentions did

not always come to fruition (MacLeod, 2011, p. 2630). Firstly the nature of these P3's have been highly particular to each city. In Boston the highly fragmented nature of the Metropolitan Planning Organization (MPO) that could drive redevelopment led to sometimes complex political negotiations between cities, unexpected overlapping of municipal policies, and even complex geographical obstacles. In addition expected and unexpected associations impacted upon economic relations surrounding cycling. For example the relations between the city planning department and street engineers in Baltimore posed a barrier to even begin competing for federal funding. Beyond this associations that extended beyond urban planners and the municipal political system impacted how cycling infrastructure was implemented, and how policy, as well as programs were developed. The example of the Baltimore Bike Party in Chapter four demonstrated how an event that seemingly rejected normal neoliberal logics through its organizational structure and non-profit oriented goals, also served neighborhood politics and economics as it was supported by local church leaders, which in turn came to service mayoral politics as Stephanie Rawlings-Blake joined the ride. As the benefits of cycling were used to draw investment, attract tourists, and entice the immigration of some form of a 'creative class' (Ponzini and Rossi, 2010), many already living in these city spaces have been ignored. In DC the heavy support given to cycling, and the expansion of cycling specific infrastructure, by the former mayor Adrian Fenty ultimately played a role in his inability to gain re-election in 2010 (Gibson, 2013). As Gibson goes on to discuss "In particular, many African-American voters saw Fenty's promotion of smart growth and 'quality of life' initiatives – particularly cycling, bike lanes, and dog parks – as tangible symbols of his capture by

a new influx of affluent, white residents and his perceived support for the gentrification of key District neighbourhoods” (Gibson, 2013, p.2). This fear of infrastructural development as a sign of displacement was recognized by Jane Morhugh, a city of Boston employee, when she stated that “Historically when new infrastructure has been put into low-income neighborhoods it has not been for low-income people, but I hope that is not the case for cycling” (J. Morhugh, personal communication, July 30 2013). Cycling seems to be understood to be positive for improving our cities economically by many advocates and policymakers as it both directly and indirectly generates capital. Yet there is a lingering concern over the narrow segment of the urban population who will benefit from cycling’s economic impacts (Pratt, 2011). It is thus encouraging to see that at the very least one person involved in the governance of cycling directly wants to ensure that its inclusion in our urban spaces is in service of a broad spectrum of a cities population, and that its benefits are accrued to the whole community.

My time in each city has shown that cycling is not simply one of a number of approaches to urban regeneration that is aimed at reducing “concentrated poverty but not necessarily to make individuals less poor” in terms of their health, exposure to pollutants, and finances (Newman, 2004, p. 44). Although it is part of urban programs and policies to foster a “creative economy” (Ponzini and Rossi, 2010, p. 1038), it also interrupts and disrupts this focus. Thus, this project at various points highlights the continuation of a general shift towards neoliberal urban governance in the U.S., and a broad shift to urban entrepreneurialism (Harvey, 2001). Yet what became abundantly clear was that the city is resultant of a complex network of associations, it is an

assemblage, and to conceptualize the city as embroiled in a totalizing neoliberalism would be to resign every actor in the urban to the “inescapable positions of victim [or] victor” (Griffiths, 2013, p. 4). As such the impacts of these neoliberal logics were only one part of a constantly shifting set of relations and interactions. The neoliberal approach at times was successful at bringing about greater privatization, individualization, and competition for funds, but at other times this was challenged as cycling became drawn into unintended, impromptu, and variously surprising assemblages.

Cycling and health

The economic potential and importance of cycling for urban settings as a creative class industry and amenity relies in part upon the broad context of an imperative of health, and cycling's relation to it. Cycling literature has discussed at length the positive health potential of riding a bicycle. As such both as a form of recreation, and more importantly a form of 'active transportation', cycling has been embraced within policy and advocacy. Indeed this belief in the potential positive impacts of cycling for public health has meant that discussions are rarely of whether cycling should be included as part of the urban landscape, but how can we increase cycling for transportation and recreation. Cycling scholarship is broad, but much continues to focus on “finding the best infrastructures to promote cycling” (van Duppen, 2013, p. 234), as the benefits for health, environment, urban design, and the economy are now common sense.

As stated cycling for transportation has received particular attention as within this setting it not only adds another activity to the cadre of recreation activities people can partake in, but replaces a sedentary act with an active one. As more people commute or run errands by bike they can infuse exercise into their normal schedule. Whilst this appears positive, there are two central concerns regarding supporting active transportation on bicycles. The first is that whilst there is an encouragement, or potentially a moral imperative to take up active transportation in addressing public or personal health issues there needs to be wide spread support and provision of resources to partake. Not all cities are involved in supporting cycling in the same way and to the same extents, and certainly programs as well as infrastructure is not equally provided within cities. What has become clear through my research is that programs and infrastructure are not definitive of participation in cycling, but it does play a large role. Cycle hire schemes may be indicative of this inequality of provision, where systems like the Hubway in Boston and the Capital Bikeshare in Washington DC have focused on implementing stations in more affluent neighborhoods and tourist centers, providing key amenities to entice the presumably progressive health and environmentally conscious creative class (Ponzini and Rossi, 2010; Pratt, 2011). The second concern is that as physical activity and forms of recreation become drawn into our business and working days, dedicated time for non-commercial activities are being lost. Increasingly non-rationalized experiences are becoming drawn into the economic system, and with it processes of alienation and disenchantment. Although providing more non-privatized spaces to be physically active is important, especially

in the neoliberal city, drawing these practices into our economically productive day is a concern.

Cycling and the environment

In addition to cycling's relation to the growing imperative for health, its continual association with a increasingly central context of sustainability and environmentalism further underpins its ability to function within creative neoliberal economic doctrines. By variously “Employing both material space and marketing rhetoric, entrepreneurial governance engages in the “imaging” of the city” (Prytherch, 2002, p. 774) as healthy and environmentally sustainable. This is not a new framing of the city, although it has become more dominant over time. Thus despite varying in context, and therefore form, a discussion of how cycling relates to the environment has been present in the policy I studied from at least the 1970's through to today. Cycling was previously related to environmental factors, yet these were connected more directly to concerns about oil resources early on in cycling policy, due to the belief that “In this country, environmental problems have not been seen as serious enough to encourage people to use the bicycle” (Central Transportation Planning Staff, 1976, p. 5).

Despite this early lack of belief in environmental imperatives for encouraging bicycle use, since that time, almost every advocacy and policy document I encountered made some reference to cycling's environmental benefits. Indeed the environmental argument has become central in promoting the inclusion of cycling in U.S. cities, offered in relation to economic and public health impacts. Thus as

“Transport is central to contemporary imaginings of both sustainable cities and healthy communities, and individuals and within such imaginings, cycling has come to occupy a privileged space” (Cupples and Ridley, 2008, p. 254). Ideas of sustainability and environmental friendliness have become more common, been drafted in laws and policy at all levels of governance. An imperative to act responsibly in relation to one's environmental impact has spurred a moralization of individual and business actions as sustainable. The facilitation of 'green' practices has become big business, as lessening pollution, decreasing water contamination, reductions in chemical treatments of food, recycling, etc. are all facilitated by a growing sector of industries.

For those that support cycling, the practice is positioned as being “good for you, your community and the environment” (Cupples and Ridley, 2008, p. 254). At the individual level it services your duty for health, within the community it supports economic growth, and in the broadest sense it is a choice in mobility that supports this vast and far-reaching thing that is the environment. The concept of the environment has become so broad and interconnected, our responsibilities to be 'green' do not just service ourselves, or our community, but can impact the planet and everyone on it. More and more so we are given information to demonstrate the wide reaching effects of our individual actions. Therefore our actions are given a heavy responsibility, and with it a growing duty. Since the 1970's cycling has become broadly understood as a green and sustainable practice, and as such services peoples growing need to demonstrate that they are achieving the duty to be environmentally responsible.

Discussing the city as complexly emergent

Throughout this project I have been struggling with the challenge that “Cities defy efforts to be classified into types, reduced to essential characteristics, and fixed by boundaries (intellectual or otherwise)” (Cherot & Murray, 2002, p. 432). Certainly I have not been immune to the reality that when “Faced with these unruly realities, urban theorists struggle to make sense of evolving urban forms” (Cherot & Murray, 2002, p. 432). Yet it was this challenge that has spurred my interest in pursuing a different course in trying to conceptualize the urban, and how cycling has come to impact U.S. cities. The results of this approach has led to what is at times a messy discussion, yet this is merely reflective of the messy and at times surprising networks that cycling was a part of. Cycling in each city, and at each level of analysis did not conform to simple organizational hierarchies, but the cycling events I attended in Baltimore highlighted to the greatest extent to complex and multiple impacts cycling has on the urban. The BBP event in particular demonstrated not only the complex networks of human actors that impacted upon the way it came together, but also the role of various environments, policies, and programs. The decaying streets of some of Baltimore's west side neighborhoods, the impromptu rules imposed by the mayors presence, as well as the broad retrenchment in government programs and investment outside the spectacularized inner harbor all impacted upon what the event became. By including this broad range of actors I attempted to avoid the “translation of the messy chaos of reality into the discrete filing cabinets” of a priori scales and structures (Anderson, 2009, p. 121). The research I carried out in Baltimore through

interviewing and attending multiple events demonstrated moments “at which discursive aspiration in the realms of market discipline and ideological hegemony overheat[ed] or simply [broke] down” (Fairbanks, 2012, p. 561). These data indeed came to confirm and inform the broad themes discussed in chapter one of this document. However, what has also been clear is that through embracing, rather than 'neatly filing' all elements of the assemblages out of which the events emerged is that at times cycling in Baltimore challenges these broad patterns and trends. Thus through embracing these moments of openness and surprise in the urban setting I believe a better understanding of U.S. cities can be constructed, the role cycling plays, as well as the places in which cycling has the potential to help to reformation of cities in more just manners. As Anderson (2009) states:

Despite our attempts to fix through words, to order and discipline the world into intelligibility, we are aware that even the more persistent coincidences of life – like us, like places, like nature – change over time: they ebb and flow, flourish and decline, mutate or miscarry. Although we are used to the modern vocabulary which disciplines the world into the fixed borders of ‘things’, ‘places’ and ‘natures’, we also sense how immersed and emergent these ‘things’ are (Anderson, 2009, p. 122).

Thus through embracing policy analysis, methods in service of assemblage thinking, and affective methods as part of broadly developed projects I believe we have the opportunity explore this 'immersed' and 'emergent' dimension to lived

experience that is often ignored. Studying cycling through these methods, cast within this thoroughly anti-modern ontology (Anderson, 2009), has the potential to radically change how we conceptualize cities, and physical activity within the urban setting. Through blending analyses of macro political processes with ethnographic methods to explore the messy ways in which these policies are formed and lived we “have the potential to elucidate translations of policy mandates in local contexts, charting local variations and complex pathways as well as edges, weak spots, contestations, contradictions, and sites of breakdown/failure” in how cities are governed (Fairbanks, 2012, p. 545).

Cycling as affectively raw and its forms of control

This project extends several other studies that have researched ideas of affect, emotion, embodiment, and the senses through cycling suggesting these are “essential components in our knowledge systems, as well as inevitable productions from our interactions with the (post-natural) world of which we are a part;” (Anderson, 2009, p. 123). These projects are still in the minority of research on cycling in comparison to work in urban policy, health, the environment, and mobility. In particular my research starts from where Jones (2005, 2012), Larsen (2012), and most recently van Duppen & Spierings (2013) left off. Van Duppen and Spierings (2013) specifically suggest that their “ethnographic methods, GPS-traced and video documented ride-alongs... form a novel means to study sensescales” (p. 235) and my work has drawn on these techniques, whilst also adding more direct forms of recording bio-markers

through Galvanic Skin Response and Heart Rate sensors. Through employing these methods, alongside ethnographic methods and policy analysis, I have sought to explore that idea that “affective moments matter and documenting them presents a way to move on from an understanding of neoliberalism [and the urban setting] as an imposition of power and explores how social life instead escapes power” in often unexpected and extra-cognitive ways (Griffiths, 2013, p. 2). Adey (2008) suggests that “that affects emerge from relations between bodies”. Thus within an ontology that includes a broad spectrum of bodies, this study paid attention to the dimensions in which people relate to a network of other actants in manners that overflow the representational. Indeed this transhuman and relational approach demonstrates that my approach to affect in this project is not simply “to surpass a ‘simple romanticism of somehow maximising individual emotions’” (Thien, 2005, p. 450). Each of the rides I undertook highlighted profoundly the extent to which even the most seemingly banal of journeys of a bicycle in the city include both cognate and affective interactions. Thus through embracing affect theory in the last section of this project I have sought to address this dimension to urban life through mobility practices, considering it as more than a function of the psyche of the sovereign individual.

Cycling provides a particularly effective practice through which to study the affective dimension to lived experience in the city as a particularly unregulated form of mobility. As Adey (2008) suggests “Movements of the body summon up feelings, which in turn may interfere with one another, aggravate, supplement or supplant, “all in unquantifiable ways apt to unfold again into action”. Thus, feelings and emotions are implicitly connected to actions of mobility” (p. 440). Therefore all forms of

movement and mobility have a particular ability to invoke affective intensities. However, as Jones (2012) discusses the intensity of being on the street is “very much greater for the cyclist because of the exposure to a much less managed and more varied sensescape” (p. 651). Therefore although my project shows a need for the refinement of methods, and an expansion of focus, starting with cycling provides a particularly fruitful practice through which to construct studies of affect broadly, affect as part of urban life, and affect through movement. A greater refinement of my methods will provide more reliable data from the recording of certain physiological responses. However, what was clear in the data I did gather is that the affective terrain of a city, and a person’s emotive response to it, are highly fluid and complex. Cycling infrastructure will always play a role in the affective experience of riding a bicycle in a city, but bike lanes will not determine non-representational urban terrain (Vreugdenhil and Williams, 2013). This promising empirical site in turn demands scholars to embrace theory that will challenge, and critically inform our study. Certainly there are many ways to approach affect, however I believe through embracing a relational and transhuman approach “the context of our always intersubjective relations [will] offer more promise for politically relevant, emphatically human” research into the associations that make up our social worlds (Roy, 2013, p. 3). As Vreugdenhil and Williams (2013) suggest “any distinction positing a world of road design and engineering [alongside other infrastructure] with all its physical materiality of concrete and cambers as separate from that of public perception, emotions and affects cannot be sustained” (p. 290). This chapter demonstrates that the cycling infrastructure of Washington DC, as a materialization of

its uneven investments in part, may not determine the affective dimension of cycling but it certainly plays an important role.

The future of urban cycling research: limitations and extensions

Whilst this project has not provided a definitive encapsulation of the city, in not being able to do so it has highlighted the complex nature of urban spaces in the U.S. and therefore the tangled role cycling has played in their formation. As MacLeod (2011) discusses “21st-century urban-regional geography—at times resolutely territorialising yet simultaneously relational, connecting places, material objects and communities transterritorially—is rendering cities less discernible” which in turn has demanded “a reassessment of the maps, concepts and theories at our disposal to make cities legible” (p. 2631). As such this project has taken up this challenge, to develop new mappings of the contemporary city as I utilize several key theoretical approaches. Through studying the role of cycling I have adapted new forms of urban studies to create novel mappings not only of urban mobility, but also of the nature of the broader urban environment. Certainly “the ways in which we conceptualise cities profoundly influence policy formulations and outcomes” (MacLeod, 2011p. 2631) as well as a number of other urban practices and relations. The research carried out in this project is a contribution to new conceptions of U.S. cities, and the primary outcome is that due to their complex, emergent, and ever changing nature they rarely adhere to simple narratives. Certainly certain elements become obdurate, forms of marginalization and inequality are repeated, and the intentions of governance are realized. Yet the ways in which these outcomes are achieved is resultant of often-

unexpected relations.

The future of studying cycling as part of U.S. cities should be relative to its role in these urban settings. Van Duppen & Spierings (2013) suggest that there continues to be:

an attempt to create “urban environments which are safer, more sociable and less environmentally damaging” (Tight et al., 2011, p. 1580), [through] new policy visions drawn up and implemented, often with a focus on encouraging walking and cycling practices (p. 234).

As such whilst cycling continues to be central to the social, political, economic, symbolic, and affective dimensions of the city there needs to be an expansion of research. In particular this research needs to continually start with cycling, but also be willing to follow the various connections that flow into other areas of the city. Without understanding cycling through these associations there will be no way of understanding the impact cycling has, and can have. This research needs to be open to new approaches, as the study of anything within the urban setting needs to be sensitive to the constant re- and de- formation of the city. The continued use of theories and models that have analyzed physical cultures and the formation of the urban from a previous generation, without empirically driven adaptation and appropriation, will do little to effectively map cycling within cities today or in the future. The future of studies of cycling in cities necessarily needs to position itself as “a response to questions about a specific changing social [and material] formation”

(Grossberg, 2010, p. 21). The city is never a complete project, thus to understand physical practices within it we must continue to develop empirically derived analyses.

As Cupples and Ridley (2008) discuss “cycling is almost ubiquitously presented as something which is cheap, easy, convenient, improves fitness and helps to reduce carbon emissions, road congestion and the strain on health services” (p. 254). The research I have done does point to moments when cycling can do all, and be all of these things. Cycling can play a role in “Developing bike-friendly policies and providing cyclists with good infrastructure” to support the idea that the “city is for everybody and all have the right to be in the city” (Koglin, 2011, p. 225).

However, cycling has, and can be used, to project an image of these things, whilst governments, groups, or individuals do very little to fully support cycling to have positive impacts. Cycling can be a positive common good for communities, yet this can only be realized when the 'bicycles as silver bullet' rhetoric is cut through. If the debates about cycling as a positive element of the contemporary U.S. cities “rested upon [discussions of] a public sector cultural budget expenditure, and democratic/re-distributive decisions thereof, it might be more acceptable” (Pratt, 2011, p. 127).

However, where spending on cycling is “driven by an externally referenced economic agenda” seeking to boost profits and underpin urban regeneration in an exclusive manner, there must be concern (Pratt, 2011, p. 127). As Lugo (2013) discusses “shifting toward cycling as transport in the US is a piecemeal process, and if bike movements do not connect with other community-based networks, the infrastructure projects they promote may be perceived as serving a privileged few” (p. 206). To avoid this neoliberal pitfall scholars need to be honest about the complex nature of

cycling for urban settings instead of blindly following a pro cycling dogma or doxa, and be critical of when cycling is being designed to be for a select section of the urban population (or population to be). The desire to be seen to support cycling is strong as it demonstrates a commitment to health, the environment, the economy, and more. However, the support of cycling through providing cycling infrastructure and pay-for-use systems like cycle hire schemes needs to also be recognized for its potential to exclude, displace, and increasingly regulate. Cycling is routinely offered as an “economic, social and environmental panacea” (Cupples and Ridley, 2008, p. 255), yet without an open commitment to support cycling as an option for everyone, encouraging a broad range of people on to bicycles, alongside a range of other social programs the positives of the bicycle will never be reached. Beneficial outcomes from cycling will only happen if cycling is promoted within a comprehensive re-distribution of wealth and resources, and until that point cycling may end up servicing the morally justified actions of an elite few. As Cupples and Ridley (2008) discuss:

While the promotion of cycling is on one level a laudable aim which seems hard to contest... there is an emerging fundamentalism which, we argue, might be at odds with promoting social inclusion and might simultaneously fail to apprehend the heterogeneity of environmental responsibility (p. 255).

Indeed promoting cycling within attempts at far reaching social changes will not guarantee only positives, due to the complexity and constant becoming nature of the city as assemblage, and as the effects bleed into a non-representational realm of

affect that continues to shy away from analysis. However, not seeing cycling within these broader networks, and the need for far reaching inclusive reform will ensure that the potential for cycling will never be fully realized. Cupples and Ridley (2008) go on to suggest that:

Cycling offers a chance not to save the planet (far too much to achieve in a daily bike ride), or ward off coronary heart disease (far too depressing to think about), but to live the city differently, to indulge in transgressive pleasures or interact with other humans and non-humans in alternative ways, a chance not to become virtuous, not to be regulated by a governmentalising gaze, but a chance to become deviant and take risks (p. 262).

The sentiment of this statement is one all those that research and advocate for cycling should embrace. Cycling should not be used to be a means through which to discipline practices within the city, center on generating profit with adverse gentrifying effects, or as a means to outwardly express a moral virtuosity, but it should support inclusive access to mobility into more of the city and underpin our ability to 'live the city differently'.

Appendices

Appendix 1 – Question guides for interviews

1.1 - Questions for cyclist

Cyclists:

- How long have you been cycling in the city?
- Do you mostly cycle for transportation or recreation?
- If it is for transportation what are some of the common tasks you feel comfortable carrying out by bicycle in the city
- Do you feel safe riding in the city?
- Do you mostly try and use the infrastructure that is specifically designed for bicycles?
- Do you make a use of the bike share program (specifically for Boston and DC)
- If so is this a regular use?
- Are you aware of many of the policies and laws that specifically pertain to cycling?
- Are you part of any social groups where cycling is the focus?
- Do you feel more connected with the city when you are riding your bicycle compared to driving?
- Do you feel that cycling policies and infrastructure have been developed for you, or with you in mind?
- How does you identity as a cyclist relate to your understanding of health and the environment?
- What does cycling, or being a cyclist mean to you?
- In what ways do you think the growing presence of cycling has changed the city?

1.2 - Questions for cycling advocates

Advocacy groups:

- Could you just introduce yourself and give me an explanation of your groups aims and functions, and then your role within this?
- How did you get into advocacy?
- Why cycling advocacy over other transportation related groups?
- What is it about cycling that needs this much support?
- What is it like working with public officials at the state and city level?
- What programs are you mostly involved in, in terms of raising awareness and developing the recognition of cyclists that you are seeking?
- What do you see as some of the benefits of cycling?
- Are these for those that cycling or do they extend beyond?

- How do your efforts relate to national advocacy organizations?
- Also how do you use or relate to policy documents at the national, state and local level?
- What community groups do you mostly liaise with?
- What are the particular types of cyclist you are trying to foster?
- How do you feel groups like fixed gear groups or BMX groups affect your mission? Does that type of cycling that ignores or purposefully flaunts traffic laws negatively effect what you are trying to do here? Or is cycling in your eyes?
- Is cycling political in your eyes?
- How does a message of cycling relate to discussions of health in your opinion?
- How does cycling relate to the environment for you?
- Where do you see cycling going in the city in the future?

1.3 - Questions for policy makers

Public officials:

- What exactly is your position in (insert organization)?
- Have you been directly involved in the development of specific cycling related policy or programs?
- If so what programs and policies were those?
- What do you see as the goal of developing cycling policy and infrastructure in the city?
- Why cycling over other types of non-motorized transportation?
- Who do you see as the primary target of this cycling policy and infrastructural development?
- What image do you think cycling projects of the city?
- How has the policy developed so far relate to the branding/marketing of the city?
- How do the policies developed in your city relate to the national and state policies related to transportation, specifically cycling? Such as the ISTEA and the TEA21
- Have you utilized federal funding a lot in developing cycling in the city? Does any particular groups or people play a role as gatekeeper in accessing this money?
- What has the bicycle plan done for transportation planning in the city?
- How do you think cycling specific infrastructure relates to the safety of the cyclist?
- Do you see cycling as a common resource that should be freely accessed by all residents in the city?
- Can you talk me through the development of cycling related policy and infrastructure over time? And then what some of the plans are for the future?
- Is your development of cycling infrastructure aimed at particular neighborhoods? If so how do you make those decisions?
- Is the work you do here carried out in conjuncture with other departments or agencies?

- If so which ones?
- What is your relationship with bicycle advocacy groups? Do you seek their help in developing policy or infrastructure?
- What has the bike share scheme done for Boston?
- Is this something you see as important to mark the city as nationally or internationally important?
- What is the future for cycling in the city in your eyes?
- How does cycling relate to a broader process of regeneration or gentrification of the city?
- What was the process of information gathering with the public in the development of the bike share, and other programs or infrastructural expansion?
- What does the city see as the role to be played by PPP's in the development of cycling for the city?
- What sort of benchmarking or modeling does the city carry out in relation to other cities nationally or internationally?
- What has been the culture of cycling in the city? If there has been a strong presence, how have you worked with these groups/individuals?

Appendix 2 – IRB consent form

University of Maryland College Park

Page 1 of 2 Initials _____ Date _____

Project Title	Cycling the city: Analyzing the role of cycling in the continued (re)structuring of North American cities.
Purpose of the Study	<i>Oliver Rick at the University of Maryland, College Park, is conducting this research. We are inviting you to participate in this research project because you are involved in the development or use of cycling in one of the cities under research in this project and we would like to discuss your experience with cycling in the city. The purpose of this research project is to understand the ways in which cycling is being developed in US cities, how this comes to restructure them anew, and how this is being used in policy and city branding.</i>
Procedures	<i>The procedures involve interviewing and observing various actors in relation to cycling in the city, as well as policy and popular media review. The study will carry out interviews across Boston, Baltimore and Dallas. The information then will be analyzed and compared utilizing social and cultural theory. Your involvement may be varied, but will always be dictated by your schedule and want to be involved. Questions such as “how do you use cycling infrastructure in your area?” or “why do you think cyclists, somewhat uniquely, believe cycling will have a wider positive impact for the community?” will be asked</i>
Potential Risks and Discomforts	<i>There are no known risks associated with participating in this research project. However, you do not have to answer any question that makes you uncomfortable</i>
Potential Benefits	<i>There are no direct benefits to participants. However, possible benefits include more equal or critically concerned cycle infrastructure design in the future. As such we hope that, in the future, other people might benefit from this study through improved understanding of the unequal design of the city and the ways in which the cycling is playing a role in this (re)development.</i>

Confidentiality	<p><i>Any potential loss of confidentiality will be minimized by having data stored in locked filing cabinets and storage areas, coding collected data, and using password-protected computer files</i></p> <p><i>If we write a report or article about this research project, your identity will be protected to the maximum extent possible. Your information may be shared with representatives of the University of Maryland, College Park or governmental authorities if you or someone else is in danger or if we are required to do so by law.</i></p>
Right to Withdraw and Questions	<p><i>Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.</i></p> <p><i>If you decide to stop taking part in the study, if you have questions, concerns, or complaints, please contact the investigator:</i></p> <p><i>Oliver Rick Office 0228 Department of Kinesiology University of Maryland, College Park SPH Building, College Park, MD 20742, Tel: 4014641175. Email: orick@umd.edu</i></p>
Participant Rights	<p><i>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</i></p> <p>University of Maryland College Park</p>

	<p align="center">Institutional Review Board Office 1204 Marie Mount Hall College Park, Maryland, 20742 E-mail: irb@umd.edu Telephone: 301-405-0678</p> <p><i>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</i></p>	
Statement of Consent	<p><i>Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.</i></p> <p><i>If you agree to participate, please sign your name below.</i></p>	
Signature and Date	NAME OF PARTICIPANT [Please Print]	
	SIGNATURE OF PARTICIPANT	
	DATE	

Appendix 3 – visuals of affect data collection equipment

3.1 - Galvanic Skin Response sensor pads



3.2 - Galvanic Skin Response unit



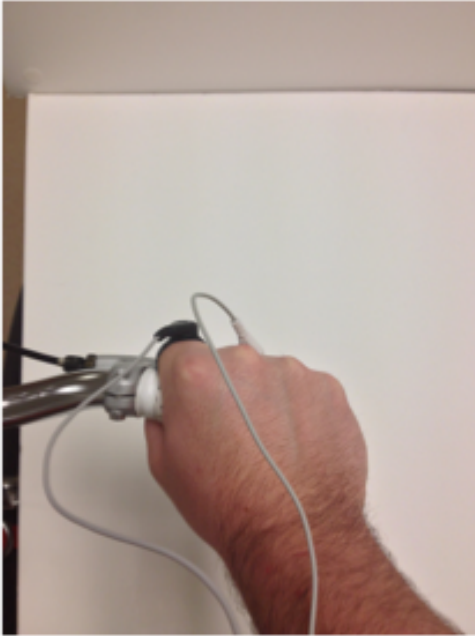
3.3 - Battery Unit



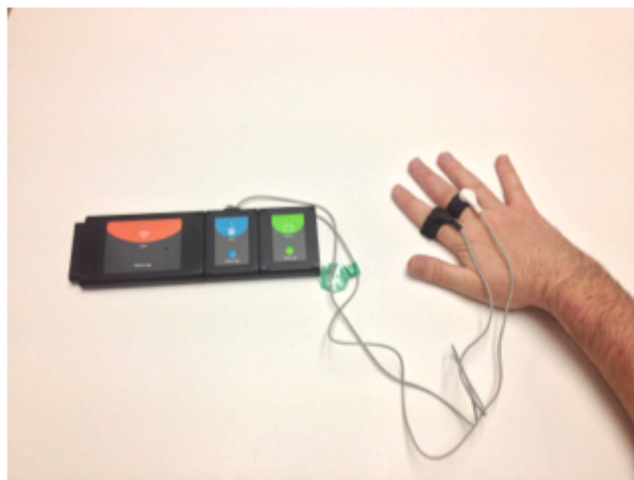
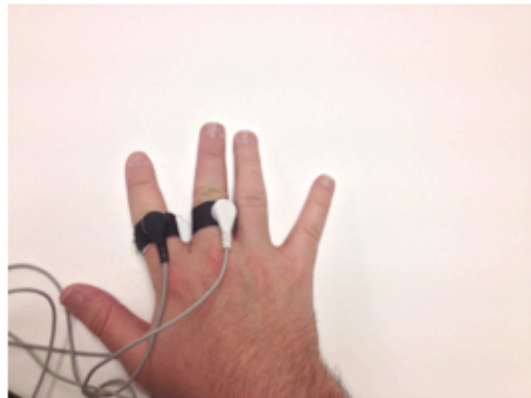
3.4 – WiFi Unit



3.5 – GSR sensor placement



3.5 – GSR sensor placement



3.5 – GSR, Battery, WIFI unit bundle



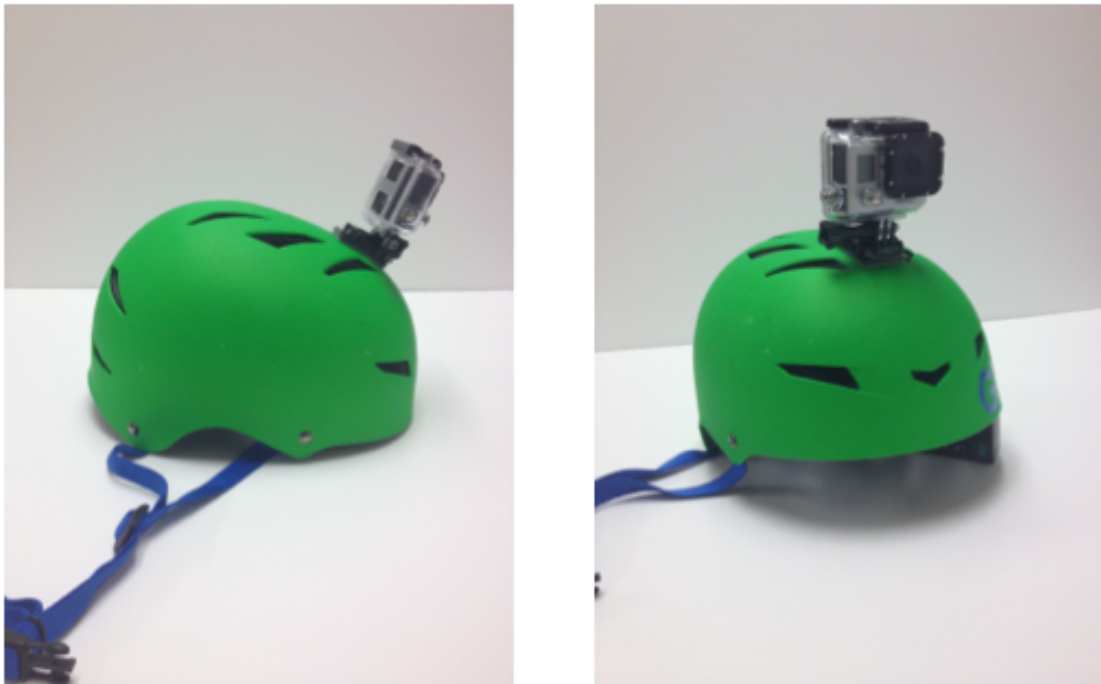
3.6 – Garmin GPS and heart rate Unit



3.7 – GoPro camera unit



3.8 – GoPro camera helmet mounting



Appendix 4 – Reflexivity and positionality in the research process

Reflexivity is a core part of any project that seeks to map the context surrounding a particular phenomenon, in this case cycling. I am certainly not the first to take up this introspective role in research (e.g. Anderson and Austin, 2012; Silk, 2010; Spry, 2001) and I am also not the first to do so specifically with cycling (In particular Jones, 2005). Indeed in a study that has a commitment to studying the context and relations around cycling at multi levels of analysis, there must not be an ignorance of oneself both as intimately part of that which is being studied, but also as I direct how this context is studied. This need to place myself into the text becomes even more critical due to the methods, and theories employed in this project. Not only the radical contextualism of the first chapter, but also the critical analysis of policy

and macro political processes in chapter two, and to an even further extent my work in chapter three and four. As such I wish to provide a brief turn inwards that informs my approaches to studying texts, my role in the city as assemblage, and my peculiarities as the focus of my affective study. As McFarlane (2011b) states ““There is no description that takes place in an ether; no value-free apolitical rendering of the world emptied of positionality and politics” (p. 735). Thus it is essential inform the reader, if only in part, of the position and politics that informs my study.

I have directed the constructions of these analyses, but also formed associations between participants and a range of other actors that will influence context surrounding cycling as well as those that assemble around it. Thus I put myself forward, as directing and being part of what has been studied here. This is not something I offer to enjoy some self-gazing, nor is it offered to complete the picture. Yet without this reflexive moment I would be ignoring a clear and present factor in each aspect of this study. It is important that to recognize that “No textual staging can ever be innocent” (Sparkes, 1995, p. 159). Thus the creation of this text, and my presence within each situation is important to map/follow, not as a required element of the research process, but with recognition that this process informs a more nuanced and informed understanding of the outcomes of my analysis of how cycling effects U.S. cities in their (re)formation. I share the sentiment of Kobayashi (2003) that:

“We need to think very carefully about the limits of reflexivity. . . [and] think about the extent to which our more reflexive moments need to be shared with the world in order to make our points. . . . Reflexivity has no meaning if it is

not connected to a larger agenda” (p. 348)

As such I share a limited discussion, but one that highlights some of the relevant dimensions to my ‘self’ that have influenced the research process.

Overall all, despite my fears and reservations throughout, gaining access to documents and participants was easy for me. All but one of the people I spoke with at any length was white; a majority of people I interviewed was male. In addition almost all of the people I interviewed, and especially those in powerful positions expressed having at least a college education. These similarities both eased my involvement and acceptance. My position as a researcher from a prestigious university carried weight in each of these encounters. It not only brought a level of credibility to what I was doing, but also often put these people at some ease. I had credibility as an academic, but lacked the potential threat of public criticism that is bound to being a journalist. As discussed earlier much academic work on cycling has been positive, mainly seeking the ways through which expand and enhance cycling. Whilst not be deceitful, I was broad in the description of my work, providing details where they were sought. Thus the assumption was that my work was aimed at supporting the expansion of cycling in our cities. Whilst my goal is improving the role cycling can play for our cities, the first step is a critical assessment of its current location, but many interviewees did not react negatively to any of my questioning that was more critical in nature. My questions were general and open, playing a secondary role to the direction my interviewees were willing to take the conversation. It must be recognized though that these questions obviously played a role in directing

participants to give specific answers, as well as the general tone of the conversation. This was not intentional, but with any directed interview this will be unavoidable. Given this inherent limitation I still attempted to stay flexible, and was willing to follow participants away from the original point in the conversation as they decided. Roulston, deMarrais, and Lewis (2003) suggest that “As interviewers, we might anticipate a certain kind of narrative or description from our respondents, but we can never be sure what will happen” (p. 644). In every interview unexpected themes came to the forefront in the conversation. Although there were certain themes I wanted to return to eventually, I was happy to follow the participant.

Cycling has been one of the few constants in my life. Life is a process of change, a constant progression. Although I am in no manner special, unique or extreme in the amount of change I have experienced I have been lucky enough to live in several places across two continents. From the streets of suburban London, to leafy hillsides in Oxfordshire, winding roads that trace the shore line of the southern Rhode Island Coast, the blended patchwork of old English cobbled and new Americanized asphalt spaces of Boston, and now on the radially gridded streets of DC I have ridden bicycles in these spaces I have called home. I moved to the U.S. with one duffel bag of clothes, a backpack of books and a laptop, but also a cardboard box containing a yellow road bike that I had free-cycled from my last job in a university halls of residence. Over these experiences I have developed particular skills, levels of comfort and passion for cycling. I am by no means a true expert cyclist in any sense, I fail to take the risks of hardened urban cycle couriers, I lack the fearlessness of downhill enthusiasts, I lack the fitness of road/cyclocross/cross country mountain/track

cyclists, and I certainly do not have the endurance of cycle tourers. Yet I am probably more comfortable and proficient on a bicycle than most. The idea of a seventy mile recreational ride at the weekends is not daunting, nor is a high speed rip through rush hour traffic in the city... well mostly. This comfort with cycling has led to, as well as being facilitated by, the bicycle being present in my everyday life. Larsen (2013) discusses that “Few find long distance cycling comfortable, or even interesting, when their legs and mind are new to it. Nor is the novice rider likely to feel safe overnight” (p. 5), but this is not new to me, and novice was a stage I passed early in my life. It has not always been a concerted effort, but certainly my constant comfort with cycling has meant that where “How fast, and how long, we cycle depends upon the kind of body we have” (Larsen, 2013, p. 5) mine has been in almost constant preparation for the task. Indeed my particular identity has meant that this comfort with cycling has been relatively easy to achieve, and has been encouraged by my parents, the media, friends, the market place, etc. I have the privilege of being able to carry out research of a physically active practice on myself. I am fully able bodied, giving me the continued opportunity to cycle, as well as the ability to study cycling as an active participant. I am a man and as such was encouraged to get on my bike and go ride with my 'mates'. I was lucky to have strong and supportive role models in both my parents. My father rode bikes, and was there alongside my mother for one of my earliest memories of cycling in a more than pure play setting. They both cheered me along as I came in near the back of a pack of children in a mountain bike race I insisted on riding in as my older brother would be competing as well. My father rode with both my brother and I in the annual London to Brighton cycle race, encouraging

me through what was to that point my most challenging physical experience. My mother rode her bicycle everyday to her place of work, setting a model for cycling as a part of everyday life. Yet what has become clear as I have grown older is that the challenges of heckling and physical intimidation that my mother talked about in cycle commuting have rarely been part of my experience. Certainly I have, and continue to receive physical and verbal abuse for my use of the roads, but it has rarely been to the level of what many women experience, and almost never abuse routed through gender. I have many role models in cycling that look just like me. Cycling as sport and as transport in the U.S. lacks racial diversity (Gibson, 2013) Certainly as a sporting pastime white Western Europeans and athletes that hale from white settler nations dominate. The sport is growing globally, however the top teams and riders still center on Western European nations, plus Australia and New Zealand, the U.S., and to a lesser extent South Africa. As such personally and culturally I have and continue to be encouraged and supported to be a cyclist in every sense that I practice riding a bicycle. Whether being involved in commuting, or riding for recreation, I have developed a long-term comfort and am made to feel comfortable in most situations. I have faced verbal and physical intimidation, and clear ignorance of my presence within car dominated cultures, but increasingly these are lessened. Awareness of cycling and cyclists is growing in the U.S. and so these comparatively minor experiences of marginalization on the road continue to diminish.

This has not been a deep interrogation of who I am, especially in relation to cycling and the research process. However, it should provide the initial ground upon which I can be understood in relation to my research. As such if any further

information is required as to my relation to the research in this project, cycling in general, or my academic work more generally I will be happy to talk with people about this information either by phone or email. If you wish to contact me about this research please email me anytime (oliver@rickcc.com).

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